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The High Commission Territories in South Africa

III. Bechuanaland

by SIR JOHN HOULTON

The government and people of the United Kingdom are directly responsible for three territories adjacent to the Union of South Africa. Discussion of their future has to be conducted in terms not only of their political status but also of their actual situation and needs. These, in each territory, are the subject of an article (of which the second was published in our July number) by Sir John Houlton who, after a distinguished career in the Indian Civil Service, visited all three

BECHUANALAND offers a great contrast to the other two territories. It is a vast area, the size of France, and parts of it are almost unknown. Most of it is covered by the Kalahari desert, which is not a desert in the ordinary sense, but a dry bush country with sand-dunes and sandstone ridges.

Huge herds of springbok and other animals which can go for long periods without water roam over southern Bechuanaland, and here are almost the only survivors of the Bushmen who were once scattered over most of South Africa. The last of them in the Transvaal and Natal—members of the same race which made the wonderful rock paintings—were being hunted out and shot with sporting rifles as late as 1880 by white men who apparently called themselves civilized. The Bushmen of Bechuanaland still live by hunting game with poisoned arrows, and they have developed an uncanny skill in locating underground water, which enables them to live where no other human beings could. There is also, it appears, plenty of underground water under the yellow Kalahari sand in the uninhabited northern areas.

In the north-west near the Angola border is the great Okavango delta, where there are forests and fertile lands and vast areas are flooded in times of heavy rainfall. Another beautiful stretch of country is along the Chobe River to the south and west of the Victoria Falls. The administrative capital is, strange to say, not in Bechuanaland but at Mafeking, a town situated in what was formerly known as British Bechuanaland but is now part of the Union.

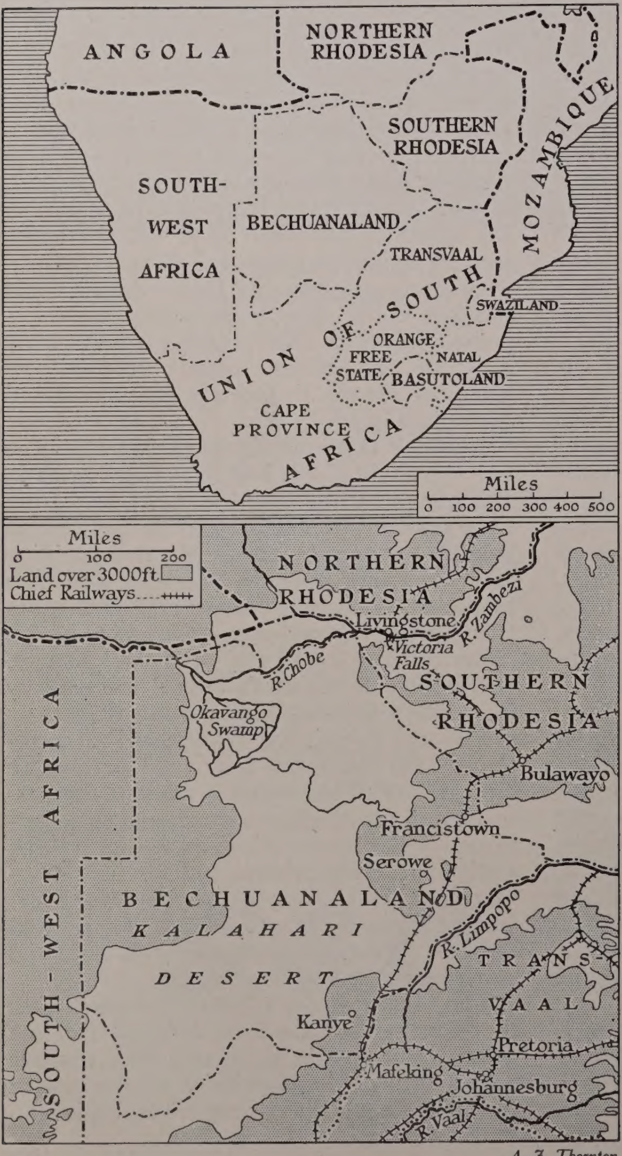
There is hardly more than one human being to the square mile in Bechuanaland and almost the whole population of nearly 300,000 lives along the eastern border and in a tract of country in the north. In Basutoland and Swaziland the mountains were a haven where a tribe could survive through troubled times; in Bechuanaland it was the very vastness of the country which formed a refuge. Like the Basuto, the Bechuana were fortunate in having a great man at their head during the critical years when Zulu and Matabele were ravaging the country and the white men were pushing up from the Cape. King Khama was one of the first in Bechuanaland to become a Christian and he saw to it that nearly everyone else in the country followed his example. He set his face against alcohol and prohibited its use.

Khama's task was almost as formidable as that which Moshesh had to contend with in Basutoland. In his long life (he reigned from 1872 until his death in 1923) he had first to beat off Lobengula and his Matabele, raiding from their new home in Rhodesia, and then to outwit Boers and Britons: Cecil Rhodes (for whom Bechuanaland was part of his "Suez canal to the North") and Paul Kruger. In response to Khama's appeal the country was made a British protectorate in 1885.

Like the Swazi, the Bechuana live in reserves. No European may hold or acquire land in any of the reserves without the permission of the chief concerned, and such permission is hardly ever given except for trading stations, missions, schools and the like. Outside the reserves there are several large areas where European farmers own farms and ranches. These areas are nearly all along the eastern strip near the railway.

The largest of the reserves is named after the Bamangwato, the most influential of the tribes which live in it, though they number only a fifth of the population of the reserve (about 101,000); the rest are tribespeople who since the days of Khama have attached themselves to the strongest tribe. The people of Bechuanaland are cattle-owners more than cultivators—it is estimated that there are over a million cattle in the country. Some of the tribes, like the Bamangwato, have a reputation for intrigues and disputes, especially about succession to the chieftainship.

The names of two descendants of Khama—Tshekedi and Seretse—have become familiar to the British public owing to a dispute of this kind. The attention devoted to it in the British press is, indeed, remarkable. If, as on a recent occasion, the affairs of such a remote African tribe, numbering barely 20,000, can claim double-column headlines in the London *Times*, we cannot justly be accused of lack of vigilance in trusteeship. Tshekedi, uncle of Seretse, is a strong and able man, and deserves well of his people for his work as regent, but his rule was too firm for the easy-going Bamangwato. Of Seretse, the grandson of Khama, and his claim to become paramount chief I can only say here that most of those who know the Bechuana people well are convinced that his return would have given rise to widespread dissension, which would have become more and more bitter as the question of the next heir loomed up, and would have meant the end of tribal cohesion in Bechuanaland.



A. J. Thornton

The majority of the Bechuana people wear dull and shabby European garments. Their round or oblong huts are neat and clean, and they build strong cattle kraals of thick branches of trees. In one way they differ from the rest of the Bantu peoples, when these are not subjected to the influence of white urban settlement: they tend to collect in large villages or towns. The biggest is Serowe, the capital of the Bamangwato, which now has a population of 16,000. A typical Bechuana town is Kanye, capital of the Bangwaketse, a picturesque town built partly on a hilltop—once their stronghold in troubled times—and partly on the plain at the foot. Here I met the Paramount Chief of the tribe, Bathoen, an enlightened and able man.

The Bangwaketse number about 39,000. They are on the whole more advanced and have a higher standard of living than some of the other tribes. They are cattle-owners and small farmers, the principal crops being maize and the cereal known as Kaffir corn. I asked the Paramount Chief if the agricultural methods of his people were improving.

"Yes," he replied, "progress is being made all the time. Shortage of water is the main trouble—the rainfall is low and erratic and the river beds are waterless belts of sand in the dry season and in fact nearly all the time. We have a fine lake and dam not far from Kanye and a number of small farmers are now irrigating their land from it and are growing large quantities of vegetables for Europeans and

By courtesy of the Commonwealth Relations Office

(Above) *The greater part of Bechuanaland is a dry bush country, without surface water except during the rains. In the north and east, however, the Chobe and Limpopo rivers are perennial and the Okavango delta* (below) *becomes a huge swamp in times of heavy rain. Elsewhere underground water can be tapped by sinking boreholes and the Colonial Development and Welfare Fund is providing substantial sums for this purpose*

J. H. Wellington

The Bechuana people tend to collect in large villages or towns and most of them wear shabby European garments. They are highly vocal and the Bamangwato, the most influential tribe, display a very well developed talent for disputation. (Left) *The 89-year-old chief of one of the tribes attached to the Bamangwato.* (Below) *Assembled tribesmen discuss the succession to the Bamangwato chieftainship, a fruitful source of controversy*

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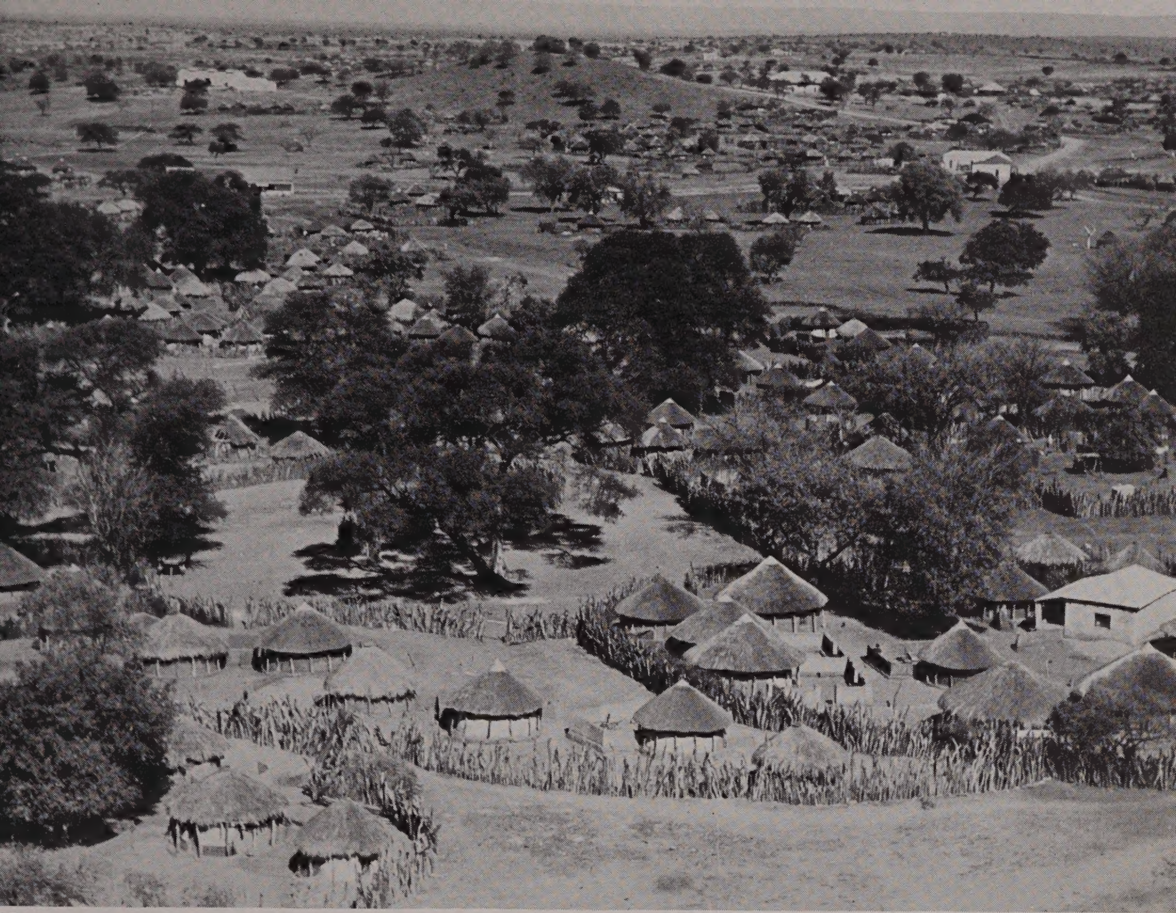

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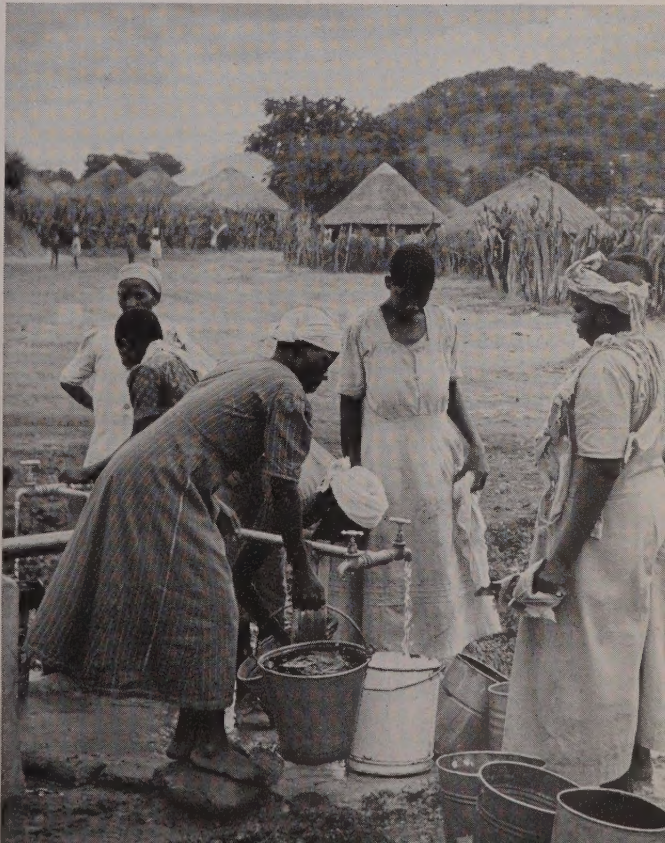


(Above) *Serowe, the chief town of the Ngwato district in eastern Bechuanaland, with a population of 16,000, is the headquarters of the Bamangwato tribe. Houses are for the most part round thatched huts enclosed by thick fences or stockades. Workshops and stores are built of brick. King Khama founded Serowe in 1903, having moved his capital there from a less well-watered area.* (Below) *Women of Serowe fetching the day's water-supply* for hospitals and so on. This is becoming a profitable business. We have every hope that boreholes will provide water in a number of places."

"What assistance does the government give towards these schemes?"

"Well, there is a government agricultural officer permanently stationed here, and he does a great deal of work in helping people with irrigation arrangements from the lake and in general agricultural work. Then there is the Colonial Development and Welfare Fund—a fund generously created by the British government to help in such matters in the colonies and protectorates. A good deal of money is spent from this fund in sinking boreholes for water and in making dams."

"What about schools and hospitals?"

"Most of the hospitals are run by the missions. Here in Kanye the Seventh Day Adventists have a big hospital and the United Free Church of Scotland runs a dispensary. The Colonial Development and Welfare Fund makes itself responsible for most of the extensions to hospitals. We have primary schools at various centres in the reserve and a secondary school is being started in Kanye."

"Can you tell me something of the system of administration in the reserve?" I asked. "I understand that it is of the type known as indirect rule. What powers do you exercise as Paramount Chief of the reserve?"

"Well, it is not so complicated as it sounds. Bechuanaland, as you no doubt know, is a protectorate under the British government and is divided into districts controlled by British officials, and in our case the boundaries of the Bangwaketse territory coincide with those of the district. We have our own tribal treasury here, and a Council with myself as chairman administers it. Our funds come from various sources, such as a share of the poll tax, school fees, fees from cattle dips and the like. We spend the money on rural roads, irrigation schemes and schools."

"Have you your own courts in the reserve?"

"Yes, we have native courts, which deal with matters affecting tribal law and custom. An appeal lies in many cases to my Council and myself. Serious criminal cases are dealt with by other courts consisting of officials appointed by the government."

"Have you any special problems among the Bangwaketse?"

"No, I don't think our problems differ much from those in many other parts of Bechuanaland. The people are poor and farming is a struggle in this dry climate. As farmers we are still backward. You have to remember that our people are cattle-owners and not farmers by preference and long tradition. There are over a million cattle in Bechuanaland. I suppose our principal needs are better farming methods and more water, and as I have explained these are the things we are all trying to tackle."

After taking leave of Chief Bathoen I took a walk round the town of Kanye. From the high ground on which half the town is built one can see for many miles across the rolling bush country of the reserve. I noticed quite a lot of cottages built in almost English style. At one house I started to change the film in my camera and the lady of the house, who was engaged in grinding corn in a primitive pestle-and-mortar sort of machine, invited me into the house to change the film. The living room was furnished with a good table and chairs, sideboard and other furniture such as one might see in an English cottage. There are of course many huts in the town of a much more primitive type. At another house the housewife was preparing the ingredients for making beer. (I should explain that alcoholic drinks have been prohibited among the Bangwaketse, as they are in the Bamangwato reserve, since the days of Bathoen, the present chief's grandfather, who was one of the chiefs who visited England in 1895. But the mild and practically non-alcoholic beverage made from Kaffir corn is allowed.) With an almost Victorian sense of respectability the lady insisted on removing all traces of the beer-making materials, and also on changing herself and her numerous children into their best clothes before allowing me to take a photograph.

The Colonial Development Corporation is planning two schemes which may well bring Bechuanaland into the news again. It should perhaps be explained that this corporation (unlike the Colonial Development and Welfare Fund) has to engage in remunerative projects. The British government has given it £100,000,000 to spend and it takes up schemes likely to be beneficial to the colonies and to attract other capital and enterprise. In northern Bechuanaland its directors have taken a lease of 16,000 square miles of Crown land for a cattle ranch, and they hope to get plenty of water from boreholes. The Southern Rhodesian government is keenly interested in the scheme. It is an ambitious and fascinating plan, for it aims at producing food and wealth on a large scale from a barren and uninhabited waste—one of the great wilder-

Pi

The Bechuana are primarily cattle-owners; the provision of wells and dams will not only assist their stock-keeping but will also promote small-scale agriculture through local irrigation schemes

nesses of the world. When I first heard of it I thought Bechuanaland might become one of the places in the Commonwealth to provide the meat for which Britain affords so ready a market; but unfortunately it seems that it is too far from the sea. The corporation is also developing a very large abattoir and cold storage plant which will deal with all cattle from the greater part of Bechuanaland. This will be of great benefit to the people; it will assure them for the first time of a fair price for their cattle. There is talk about railways which may be built across the territory, but so far the schemes are very much in the air.

From time to time in the last twenty-five years the Union government has put forward its claim that the three territories be incorporated in the Union. The main arguments are the administrative inconvenience and anomalies of the present system; the fact that nearly all the exports from the territories come to the Union; and the menace to the Union of soil erosion and diseases of men and cattle. The last argument was a strong one until about fifteen years ago, for the territories were grossly neglected by the British government and were an eyesore and a danger to the Union. Basutoland in particular is one of the chief watersheds of South Africa; among other rivers the Orange and its tributary the Caledon have their source there. But in the last fifteen years Great Britain has (as we have seen) tackled these problems in a determined manner, and very large sums have been poured into the territories. One outstanding achievement may be mentioned; by an energetic campaign, superbly organized, the destructive scab disease of sheep was completely eliminated from Basutoland. The great projects now in hand are making Swaziland and perhaps Bechuanaland rich and productive countries instead of liabilities.

But if the arguments about erosion, disease and neglect have lost their force, many white South Africans still maintain strongly that from the political standpoint the three territories ought to be transferred to the Union. It is beyond the scope of these articles to discuss the provisions of the Act of Union for their eventual transfer, for certain safeguards concerning the rights of the native people, and for consulting them and the British Parliament before the transfer takes place. Of the attitude of the people of the three territories, however, if they were consulted at the present time on a proposal to transfer, there can be no doubt at all : they would almost unanimously oppose it, and their wishes could not be ignored with impunity by either the British or the South African government.

Men and Beasts in the Canadian Arctic Islands

by LORD TWEEDSMUIR

The shortest air route between North America and Russia crosses the Arctic Ocean. In this air age, therefore, the Canadian Arctic Islands have acquired a new interest and strategic importance. The author, whose book Hudson's Bay Trader *is shortly to be followed by a volume of reminiscences entitled* Always a Countryman (*Robert Hale*), *describes from personal experience the relationship of the human beings, animals and plants found in the area to each other and to their harsh environment*

In our own whirling civilization we have achieved a certain simplicity of life, through unbelievable complexity which obscures, for all but the thoughtful, the foundations upon which life rests. In the Canadian North the dimensions of existence are clear-cut, and the balance of nature between man and beast is the balance of life itself.

I spent the year immediately preceding World War II in the Canadian North, in the service of the Hudson's Bay Company. Many changes have come to that land since then. For almost none of the Eskimos in that part of Baffin Island had ever seen an aeroplane, and most had seen only a few score of the white race, those who travelled on the annual round of the Company's supply ship, in addition to the few Hudson's Bay Company traders, Royal Canadian Mounted Policemen, and missionaries who lived there all the year round. These last were not numerous. Our trading post on the shores of south-western Baffin Island was managed by my companion and myself, and it was more than 300 miles to the next settlement which was a metropolis by comparison, for it contained two traders, two policemen and a missionary.

Now the far North has become an important strategic frontier to the whole continent. There will not be many Eskimos now who have not seen an aeroplane, and something of the complicated apparatus of the white man's existence. But the fundamentals do not change. There is an elemental permanence in the undulating rocky land that is snowbound for the greater part of the year: silent as death all winter in the grip of the frost. It is loud with the sound of birds and running water in the summer; but in the North they say that there are no seasons: "Just nine months winter, and three months bad going." The men of the country do not change, that is those who live in the country all the year round, and not those who merely commute backwards and forwards from civilization. Nor do the beasts of the country. Nor does the way of life of the country, which is a balance between these two and the vegetation on which some of the land-animals directly, and all of them indirectly, depend.

Her Majesty has no more cheerful and good-natured subjects than the Eskimos. It is as hard to dislike an Eskimo as it is to master his language, which is of such complexity that beside it English is a mere primitive dialect. The Eskimo is not tall, but he is broad and inclined to be bandy-legged, perhaps from being carried as a baby in his mother's hood. His hair is black and lustrous as a raven's wing and generally worn in a bob. His face is dark and with a strong Mongolian cast, but sensitive to catch the smallest suggestion of humour. He hopes to rear strong sons to care for him in his old age, which is always a period of dreaded twilight to primitive peoples. But otherwise he looks no further than the day, and utterly lacks the urge to conserve the hunting grounds for future generations of his own kind. I once asked an Eskimo what he thought would happen if they slaughtered all the walrus and the caribou. "I don't think about it," he said simply.

The Eskimo is a cheerful Christian, generally with a lingering belief in the old gods. He finds these two creeds compatible. One explained to me that our God was good and that all the others were bad, but that was not to say that they didn't exist. He has no interest in, and little curiosity about, the rest of the world, merely accepting that there must be some other rather different place from which white men come. The Royal Canadian Mounted Police conduct long and arduous patrols in that huge country so sparsely sprinkled with population, but they encounter little crime except when a man, in the grip of

chrome *John C. Grady*

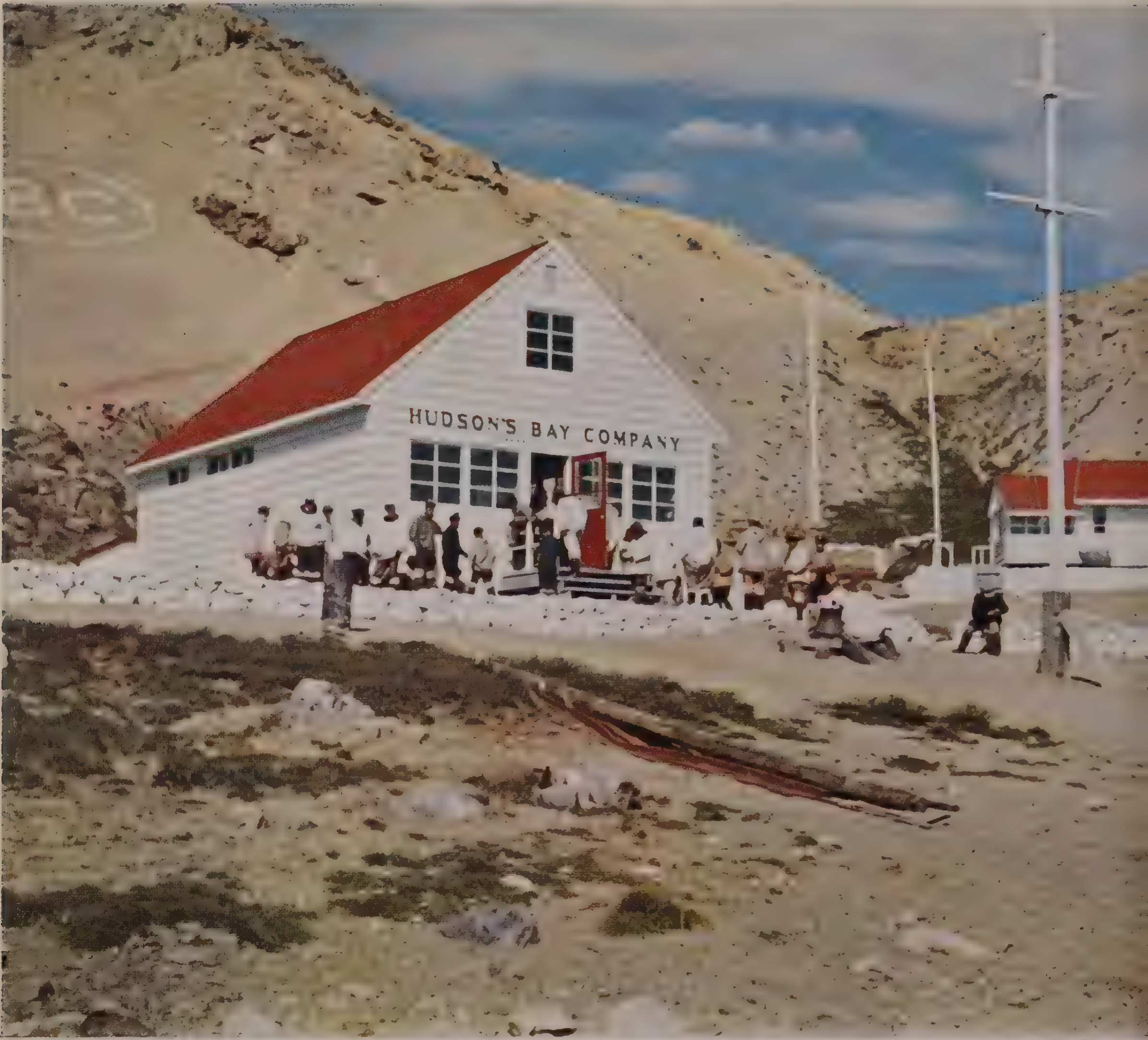
The Royal Canadian Air Force extends a long, protective arm into the far North, to guard isolated outposts and keep them supplied. Unloading next year's stores at Resolute Bay, Cornwallis Island

a curious kind of Arctic hysteria, will sometimes slay his fellow.

The Eskimo's year begins with the coming of autumn. The land is still free of snow. The sea is still free of ice, except for a few great wandering icebergs and the floating pans of ice that the wind drives together into great glimmering fields, like a jigsaw puzzle loosely assembled.

Then the Eskimo gets from the Hudson's Bay Company post his outfit for the trapping and hunting season ahead of him. He is given an advance according to his own proven merit as a hunter and trapper, and the needs of his family. Thus has the Hudson's Bay Company traded since 1670, on the basis of mutual trust. The world of commerce can show no form of gentleman's agreement that has worked for so long and so smoothly. From the post he gets rifles and ammunition and fox-traps; flour, sugar, coffee, tea, tobacco, needles, duffle blanket and a score of other things besides. And then the hunter's year starts.

To trap and hunt in the winter you must be able to travel. To travel you must have dog-feed, and that means the flesh of walrus or fish. The fish are Arctic char, first cousin to the sea trout, and they swarm up the rivers during the short season of running water in



John C. Grady *Kodachrom*

For nearly 300 years—long before Canada came under the British Crown—the Hudson's Bay Company has traded by the sea route with the Eskimo hunters, who bring their fox and other skins to the Company's trading posts, as here at Lake Harbour, Baffin Island, where they encamp for the summer

numbers uncounted. The Eskimos build a stone wall across the river to stop them, and another stone wall below them to contain them, and then wade in among them with their fish-spears. But the walrus is hunted among the islands and the sea-swept rocks by a little fleet of kayaks and Peterhead cutters, called "schooners" in the North, which some of the richer and more provident Eskimos acquire from the proceeds of their trappings. The weapons are the rifle and the ivory-headed harpoon. A bull walrus weighs the best part of a ton. His flesh feeds the husky dogs; his hide, cut in strips, fulfils the uses of rope, and his tusks many of the uses of wood or metal. For there is no timber, even little driftwood, in the Eastern Canadian Arctic. Nor are there any easily mined minerals. Thus the Eskimo exists in the Ivory Age, supplemented by some of the products of the Steel Age that our civilization has brought to him.

Of the other strictly marine animals there is the small white whale and the seal. This last is one of the staples of Eskimo life. Its skin makes warm clothing, its oil, burning in the lamp of hollowed-out soapstone, warms and lights the snow house. I say strictly marine animals, for the polar bear is a consummate swimmer and the white fox no mean performer in the water.

With the passing of the autumn and the walrus hunting done, the sea becomes first viscous and then solid with eight feet of ice, stretching many miles out from the shore, and the snow comes and land and sea are one. Then there is no noise, for there are no more waves and the rivers are frozen, and nearly all the birds have fled south to avoid the winter. For days on end the sky sees one procession of wings after another. There go the myriads of geese of North America: Canada geese, Greater and Lesser snow geese, Blue geese and Brent geese. Then there are the eiderducks, and the gulls and the waders, the ghostly white falcons and the little birds. There remain only to face the frost the Great Snowy owl, the ptarmigan and the raven.

Man is no longer confined to his boat or his own two legs, if he wishes to travel. For he can now go anywhere with his dogs on land and sea. And these dogs go far and fast. They weigh the better part of ten stone each, and can exert a direct pull of a quarter of a ton. With Ottoochie, the Eskimo who accompanied me on all my journeys, I once did more than seventy miles in a day, for after the short daylight had gone the Northern Lights came out and we travelled till we and the dogs could go no further. Ottoochie used to talk to the leading dog as if it were a human being. He would have long logical arguments with the dog, lasting it seemed for hours.

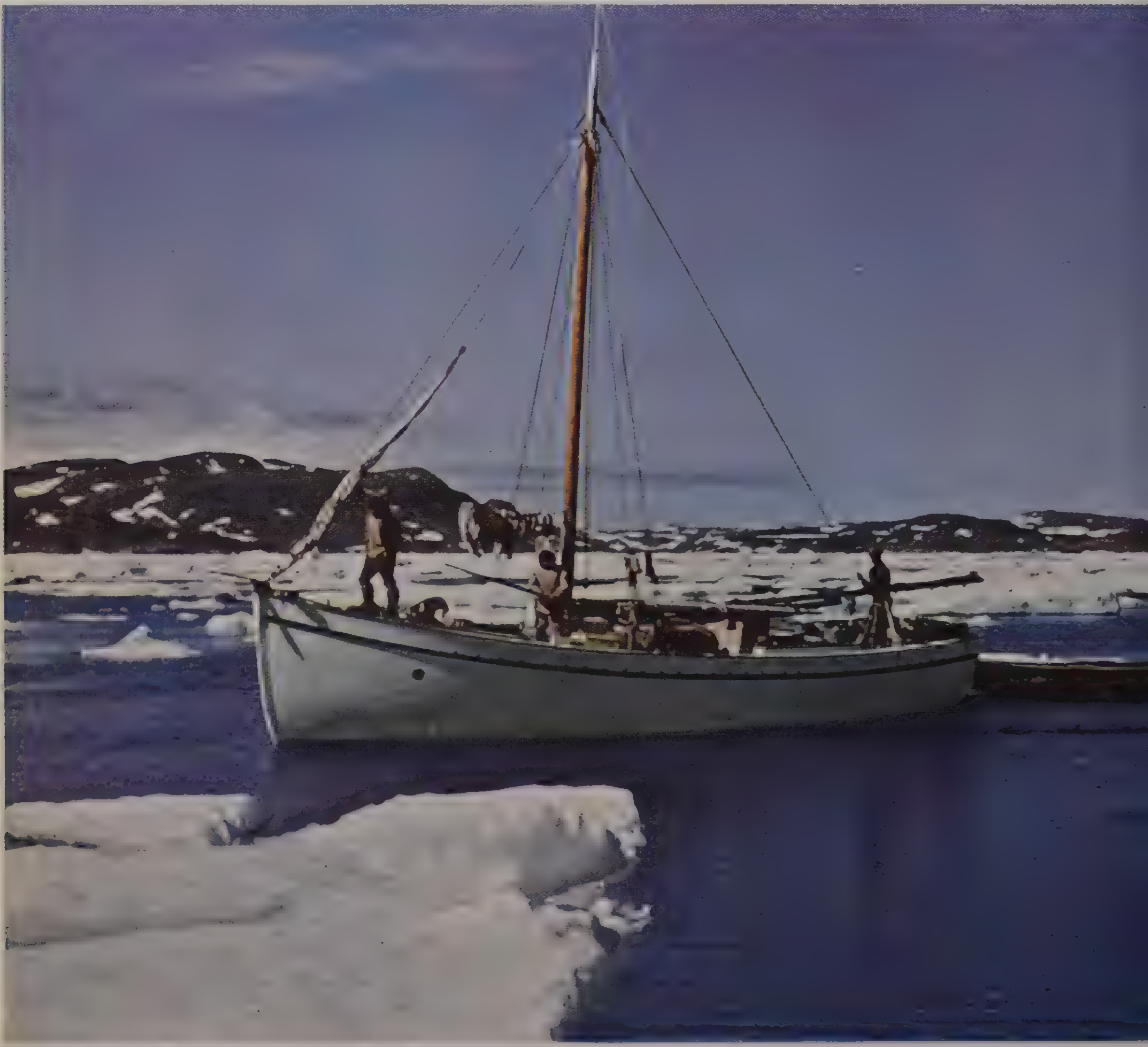
The light gets shorter and the frost tightens its grip as the trapping season goes on. The traps are set for white fox. Once in a hundred times you find the rare blue fox. Sometimes it is the ermine weasel, though more often than not he has stolen the bait without getting caught. Sometimes there is a big white Arctic hare who has inadvertently sat down on the trap, as they love to sit on the tops of hillocks which is where the traps are set. Once a polar bear, nosing after the smell of the bait, got the trap firmly on the end of

Canvas tents are now the common form of summer shelter for the Eskimos of southern Baffin Island. They are very often rich in household utensils and mechanical equipment obtained by trading at the posts and are usually surrounded by a miscellaneous collection of hunting gear, kayaks and sleds

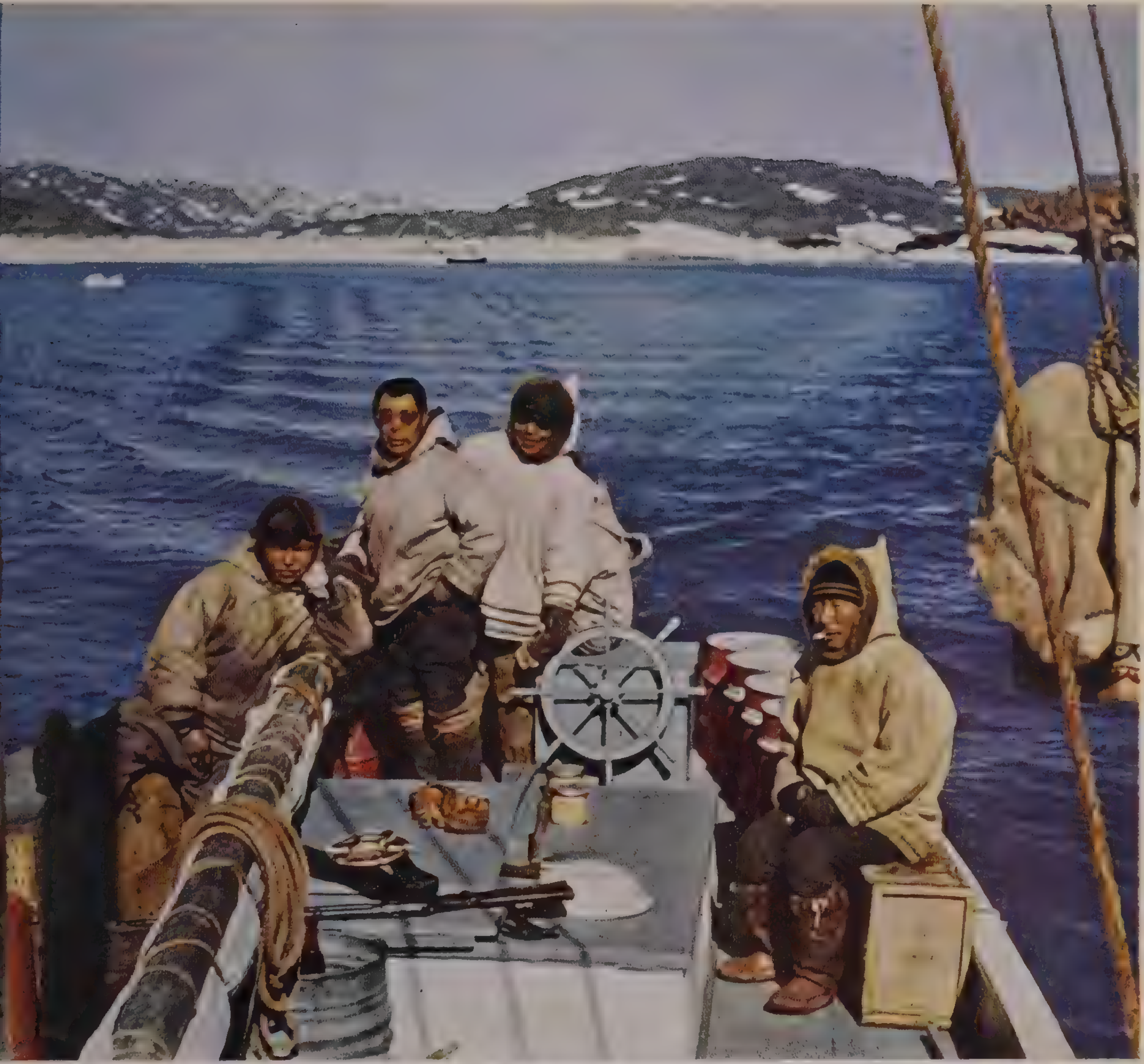
chrome

John C. Grady

Peterhead cutters, which are decked vessels about forty feet in length, powered by a petrol engine and an auxiliary sail, are owned by the more prosperous Eskimos and used for seal and walrus hunting



John C. Grady *Kodachrom*



achrome *John C. Grady*

The Eskimo crew of one such cutter (chartered by a Geological Survey field party in 1950) who afterwards during six weeks of hunting killed sixteen walruses, several white whales and many seals

Canadian Wildlife Service

Kodachrom

Canadian Wildlife Service, Department of Resources and Development, Ottawa, Ontario

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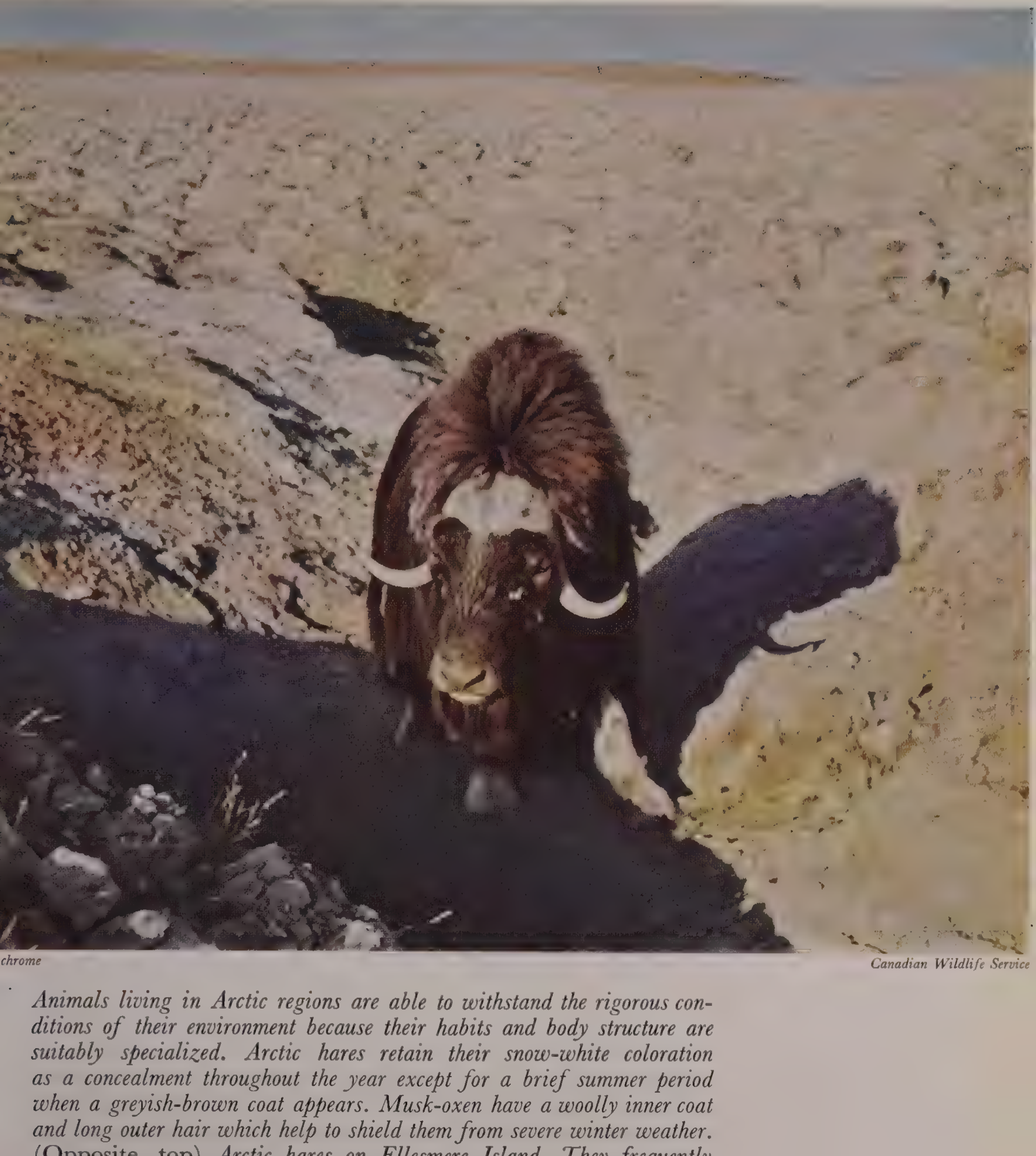

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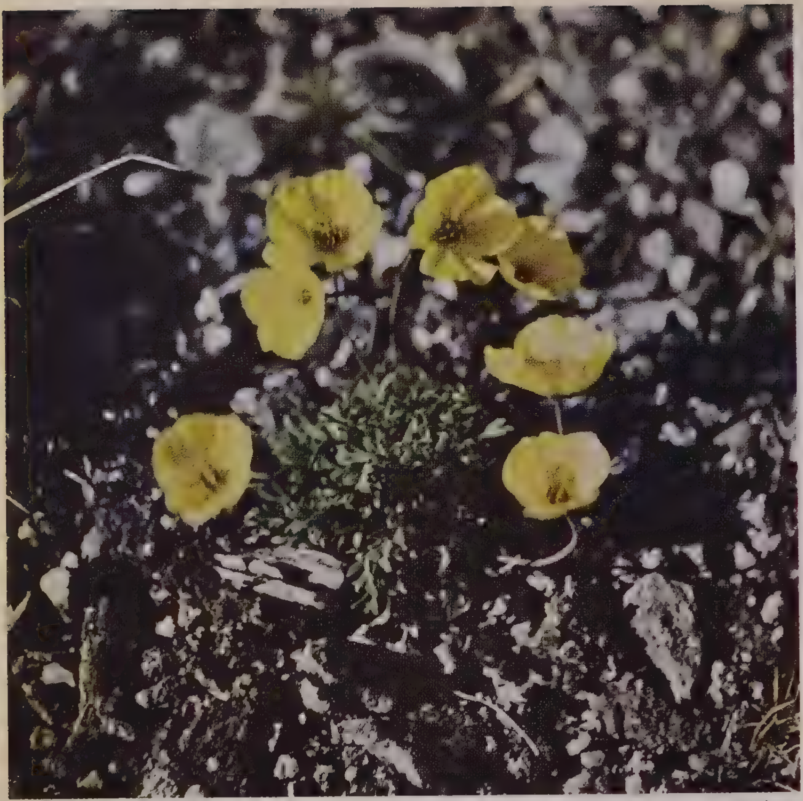
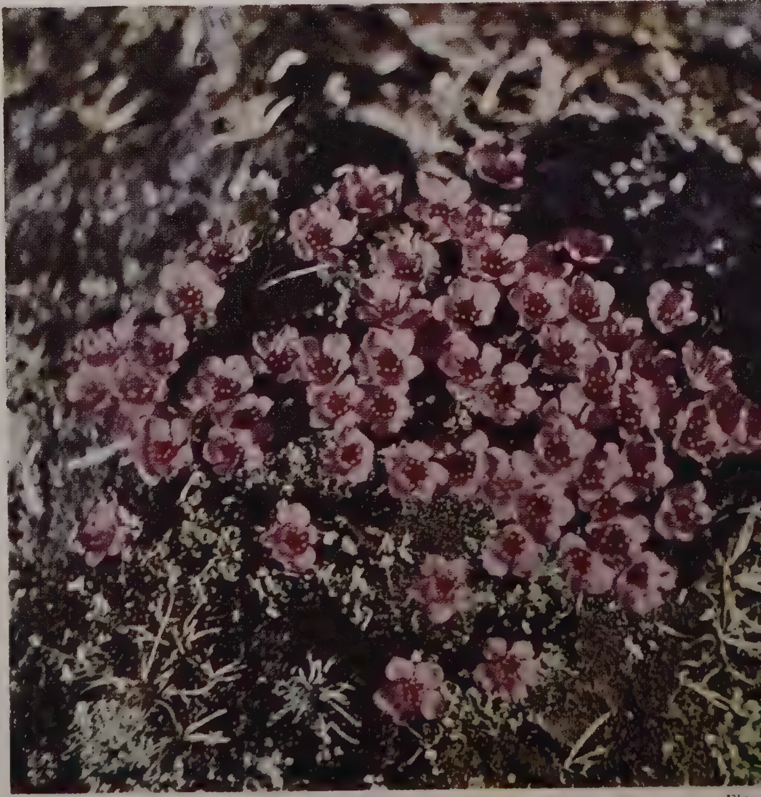
Canadian Wildlife Service

Animals living in Arctic regions are able to withstand the rigorous conditions of their environment because their habits and body structure are suitably specialized. Arctic hares retain their snow-white coloration as a concealment throughout the year except for a brief summer period when a greyish-brown coat appears. Musk-oxen have a woolly inner coat and long outer hair which help to shield them from severe winter weather. (Opposite, top) *Arctic hares on Ellesmere Island. They frequently gather in large groups of several hundred and, when chased by wolves or dogs, hop on their hind legs with surprising speed, much like a kangaroo. As a result of rigid protective regulations, musk-oxen are increasing in numbers in the Canadian Arctic.* (Opposite, bottom) *A herd on Ellesmere Island assuming the defence formation typical of the species when an enemy, usually an Arctic wolf, approaches.* (Above) *The adult bull musk-ox, weighing about six hundred pounds, is a formidable opponent both to wolves and to other bulls contending for mates in the mating season*



Canadian Wildlife Service Ektachrome

(Left) *Arctic Poppy* (Papaver radicatum L.) *near the coast o Ellesmere Island; a hardy plan widely distributed in the Arcti*



Canadian Wildlife Service Ektac

Rapid growth, quick maturing of seeds and the storage of food for the following year's growth are some adaptations used by various Arctic plants to obtain the greatest benefit from the short cool summer when the sun is shining for twenty-four hours a day. (Right) *The purple saxifrage* (Saxifraga oppositifolia L.) *is one of the most brilliantly coloured of the Arctic perennials* his black rubbery nose. From the marks in the snow he must have been in a singular rage. We were grateful that he had departed by the time we arrived.

The polar bear is possessed of mighty strength. For a short time our Eskimos had two very small bear-cubs, who looked solemnly at their paws and did a good deal of growling. Small as they were, they were much too strong to invite any liberties. Against the severe comparison of the snow the bear shows not as white, but as the palest of pale gold. His warm coat provides the covering for the snow house floor. It can have other uses. Some years previously my fellow-trader had spent a year far to the north, in Devon Island. He broke a sledge-runner when he was far from home. These runners are solid baulks of timber, joined by the cross-pieces and lashed. One runner split down the line of lashing holes. Taking his rifle he shot a new line of holes. A mile further on the runner split again and the sledge was useless. There were two Eskimos with him. As luck would have it one of them managed to shoot a polar bear. They skinned it and harnessed their dogs to the skin; then, clutching their chattels and each other, they bumped back the long miles to the post, to be black and blue for weeks after.

The caribou, elsewhere called reindeer, are an important part of the Eskimo's economy. Their skin makes the warmest of winter clothing and their sinews are used for sewing fur garments and are preferred to any white man's thread. In his heedless way the Eskimo, with a rifle in his hand, has decimated the once numerous herds. Ottoochie told me that when he was a boy it was still possible to slay caribou within a mile of the trading post. They shot them with arrows from ambush. But now it is a 200-mile journey to reach the herds.

These are the quarries of the hunter, that feed and clothe and warm him; and further they give him the means to travel, and to trap the white fox, and the blue fox, and the tiny ermine weasel; which in turn provide him with the means to trade and trap and travel again, and rest contentedly during the summer, and buy presents for his wife and spoil his children.

The timber wolf of the forest is not dangerous, but the Arctic wolf can be so. The Eskimo hunters had considerable dread of the great gaunt shapes of creamy, brindled fur. They are of little value to trade, for their pelts are as rough as a nutmeg-grater to the touch.

There is only one other big animal in the far North and that is the musk-ox. This strange, shaggy, Arctic buffalo is found on many Arctic islands. When threatened the herd forms a tight circle facing outwards. This is an ideal formation against wolves, but disastrous against a man with a rifle. For the past thirty-five years musk-oxen have been fully protected by the Canadian Government and no-one is allowed to shoot them.

There is one last animal of supreme importance. He has the unenviable job of providing the food for the next most numerous animals. He is the lemming, an Arctic mouse found as far north as land goes, and is the staple diet of the fox, the weasel and the Great Snowy owl.

It may seem remarkable that animals as large as the caribou and the musk-ox can survive the long winter months, when the herbage is hidden under the snow. Even in high summer it does not seem abundant pasture. At that season you will find strange rounded plants, like pin-cushions, among the rocks, and lichens and mosses of many varieties. In the hollows are short-stemmed grasses and marshy herbage. In places there are flowers, sometimes of many varieties and of much beauty. Then comes the snow to cover the land for months on end. The moss is the food of the caribou. His long 'shovel-horn', which reaches almost to the tip of his nose, helps him to sweep the snow away until he reaches it. The musk-ox must paw his way down to the grazing: both he and the caribou seek areas where, on slopes and flat plains, the wind may sweep the ground nearly free of snow. Ptarmigan and hares also dig where they know that the snow is thinnest. But the lemming colonies are often in snow feet deep and are an intricate series of galleries by which the lemmings can pass from the herbage below to the air above: the foxes and the weasels burrow to dig them out.

So the long winter passes, with the cold half-light of the winter trail varied by the precious warmth and light and good cheer of the snow house. Then the sunshine comes again and gradually waxes in warmth and the sea-ice breaks up, and the rivers run, and the birds return. The Eskimo rests and deliciously ponders on spending the treasures of his trap-line. Snow houses give way to tents as family dwellings and another year has passed.

There is only one real law of Nature, all others are merely by-laws appended to it. That law is: what is destroyed must be replaced, or rather allowed to replace itself. The weapons of the Steel Age in the hands of Ivory Age men have caused an appalling diminution in the numbers of the walrus and the caribou. And it is not enough for us to smile and say with the Eskimo: "I don't think about it."

Explorers' Maps

II. The North-West Passage: Frobisher to Parry

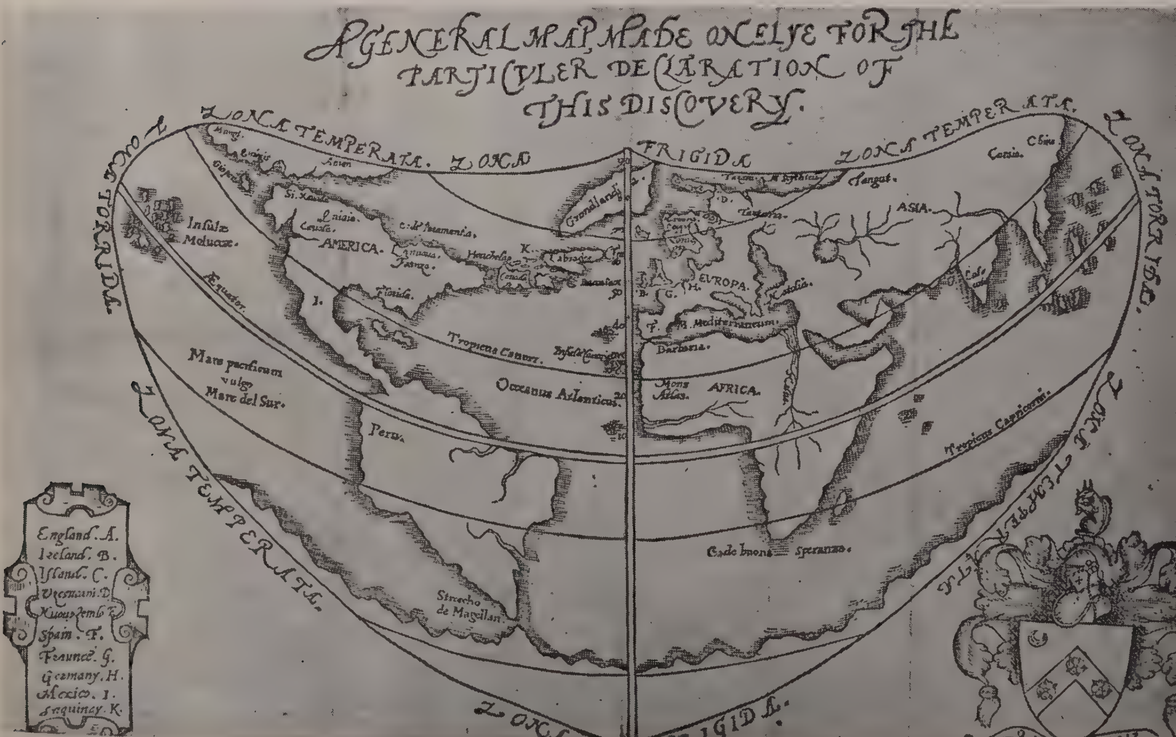
by R. A. SKELTON

This is the second of a series of articles by the Superintendent of the Map Room at the British Museum which will present, in regional order, some episodes in the history of exploration for which the evidence of maps is specially interesting or accessible. The text is to be read as a commentary on the maps (some here reproduced for the first time) and not as a connected history of discovery

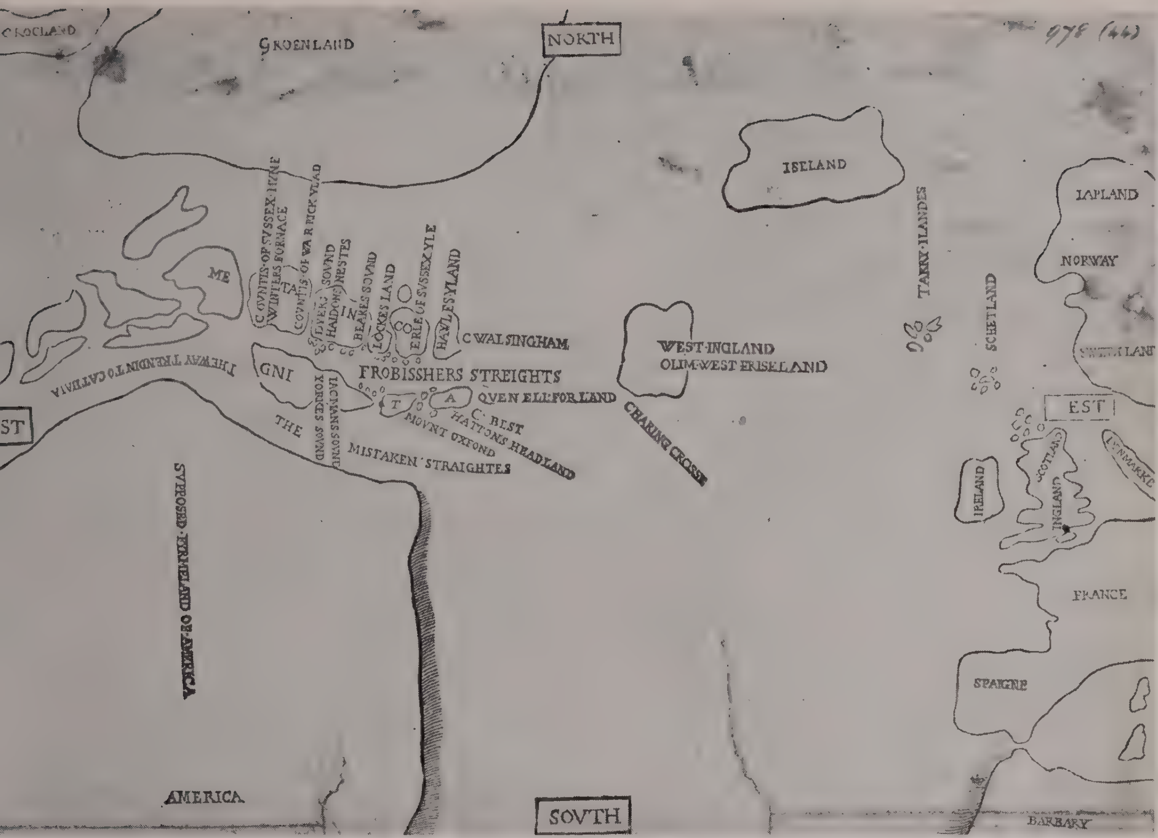
When in 1527 Robert Thorne, studying his globe, proposed the "waie of the northe" for English commerce with Cathay and the Spice Islands, he offered his countrymen the choice of three routes which he believed to be navigable: "toward the Orient", "towards the Occident", and "right toward the Pole Antarctike". With the establishment of the Russia trade from about 1560 and the failure of Pet and Jackman in 1580 (described in my previous article), English enterprise towards the north-east had spent itself, and the Elizabethan adventurers looked west, by "the backe side of the new found land", for the short route to Cathay.

Contemporary maps (Figs. 3, 4) reflect the belief in sea or land passages, lying south of the Arctic Circle, by which the American continent might be crossed or outflanked. In about 40° N a narrow isthmus divides the Atlantic from the gulf, or "Sea of Verrazano", which Giovanni Verrazano thought he had seen on his voyage along the American seaboard in 1524. On "Sir Humfray Gylbert knight his charte", the St Lawrence is drawn as a strait traversing the continent to the Gulf

(Fig. 1) Sir Humphrey Gilbert's map, published in 1576, emphasizes the shortness of the north-west route to the Moluccas compared with those by Magellan Strait and the Cape of Good Hope, and shows it as lying in temperate latitudes, whereas that by the north-east is within the Arctic Circle



All illustrations, except one, from the British Muse

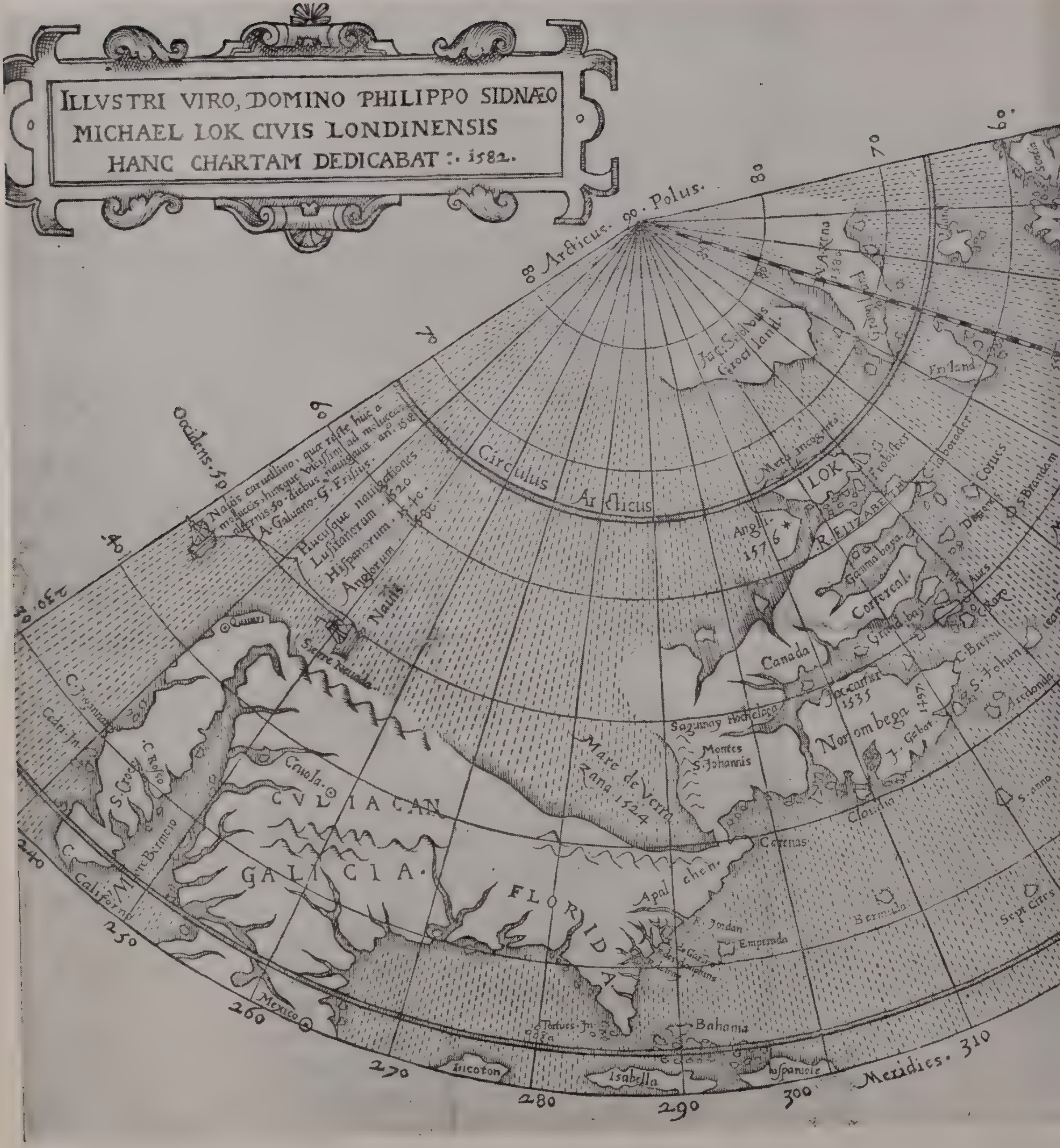


(Fig. 2) This chart, perhaps by James Beare, illustrates Frobisher's voyages of 1576–8 and the two channels he supposed to open on "the way trendin to Cathaia". The coasts of Baffin Land, drawn as an archipelago named "Meta Incognita", the Unknown Bourne, are pierced by "Frobisshers Streights" (Frobisher Bay). "The Mistaken Straightes" represent Hudson Strait, entered by Frobisher in 1578

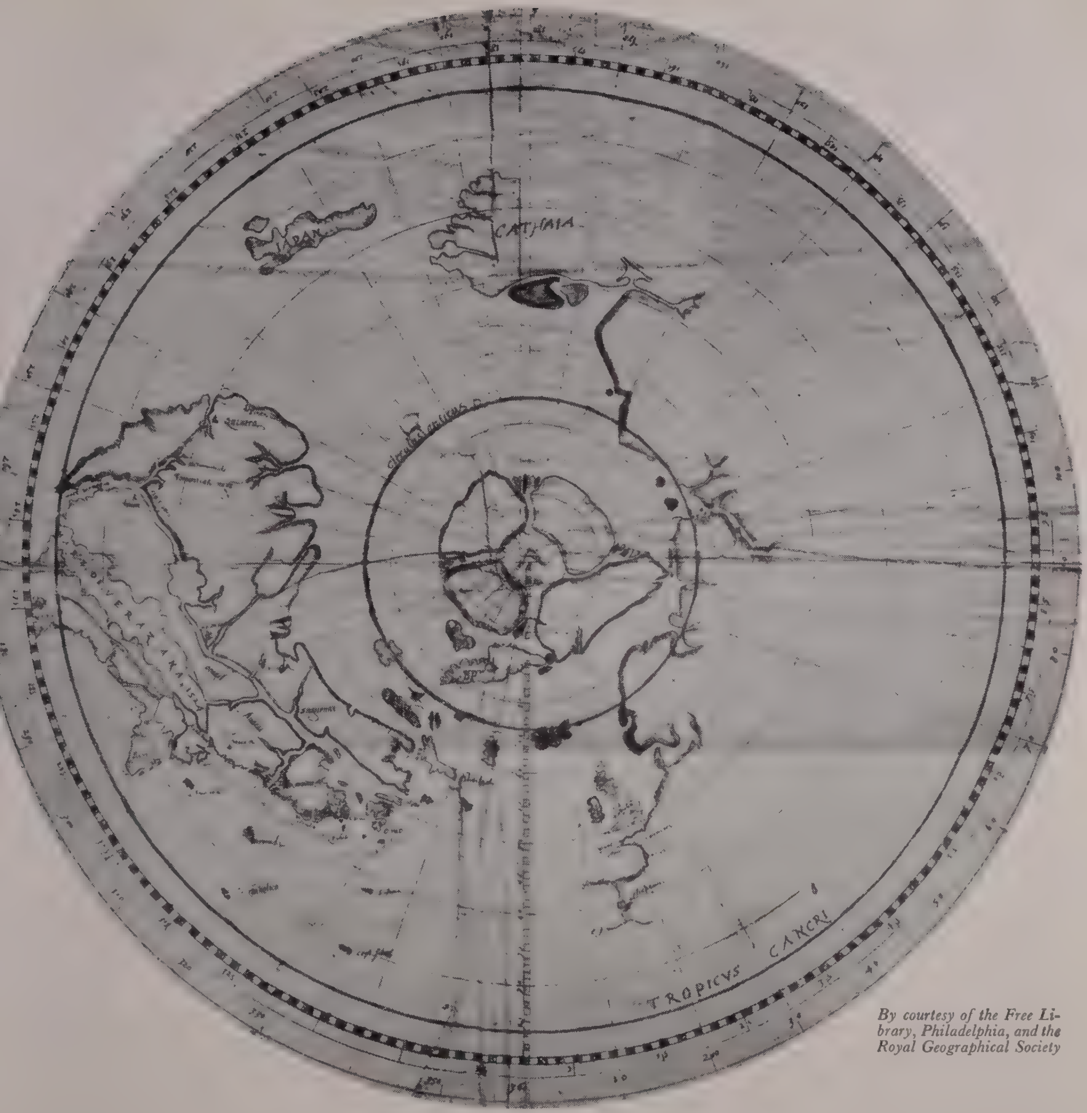
of California. Further north, a navigable sea passage is shown just above the 60th parallel. Other fabulous or semi-fabulous passages, developed from travellers' tales, fed willing belief and conspired to cheat the hopes of explorers. The "Strait of Anian", conceived in the 16th century as the sea passage between Asia and America, came to be sought as a waterway from the Pacific to the northern shores of the American continent. Michael Lok, examining an old Greek pilot at Venice in 1596, learnt that he had four years earlier, on a voyage for the Strait of Anian, discovered a sound in 47° or 48° N, by which he sailed from the South Sea into the Atlantic and back; and for 200 years navigators searched for the Strait of Juan de Fuca.

From such speculative geography sprang the Tudor and Stuart enterprises. Some were aimed at the establishment of a North American colony as a stepping-stone on the western passage. This motive lay behind the ventures of Gilbert in 1583 and of Raleigh in 1585–7 and even the colony planted in 1607 at Jamestown, where Captain John Smith commented satirically on Captain Newport's "five peeced Barge, not to beare us to that South sea, till we had borne her over the mountaines". Other projects were directed to the search for a sea-route to the north of the continent. Gilbert had himself, as early as 1565 or 1566, taken the lead in urging "how that the passage by the Northwest, is more commodious for our traffick, then the other by the East", and he and Anthony Jenkinson debated the advantages of the two routes before the Queen and Council.

Gilbert's *Discourse of a discouerie for a new passage to Cataia,* with his map (Fig. 1), was printed in 1576 and served as propaganda for the voyages made by Captain Martin Frobisher in 1576–8 for the newly founded Company of Cathay. The "supposed straight" into the South Sea discovered by Frobisher at his first attempt was a bay, and his search for the passage was diverted into a hunt for gold-



(*Fig. 3:* above) *in Michael Lok's map published by Hakluyt in 1582 to demonstrate English priority in the exploration of North America, Frobisher's supposed channels lead into a Pacific Ocean which is greatly exaggerated in width. In 40° N the continent tapers to a narrow isthmus separating the Atlantic from the "Sea of Verrazano". "Sir Humfray Gylbert knight his charte"* (*Fig. 4:* opposite) *indicates, in addition to these passages, a navigable strait from the St Lawrence emerging into the Pacific in the Gulf of California*

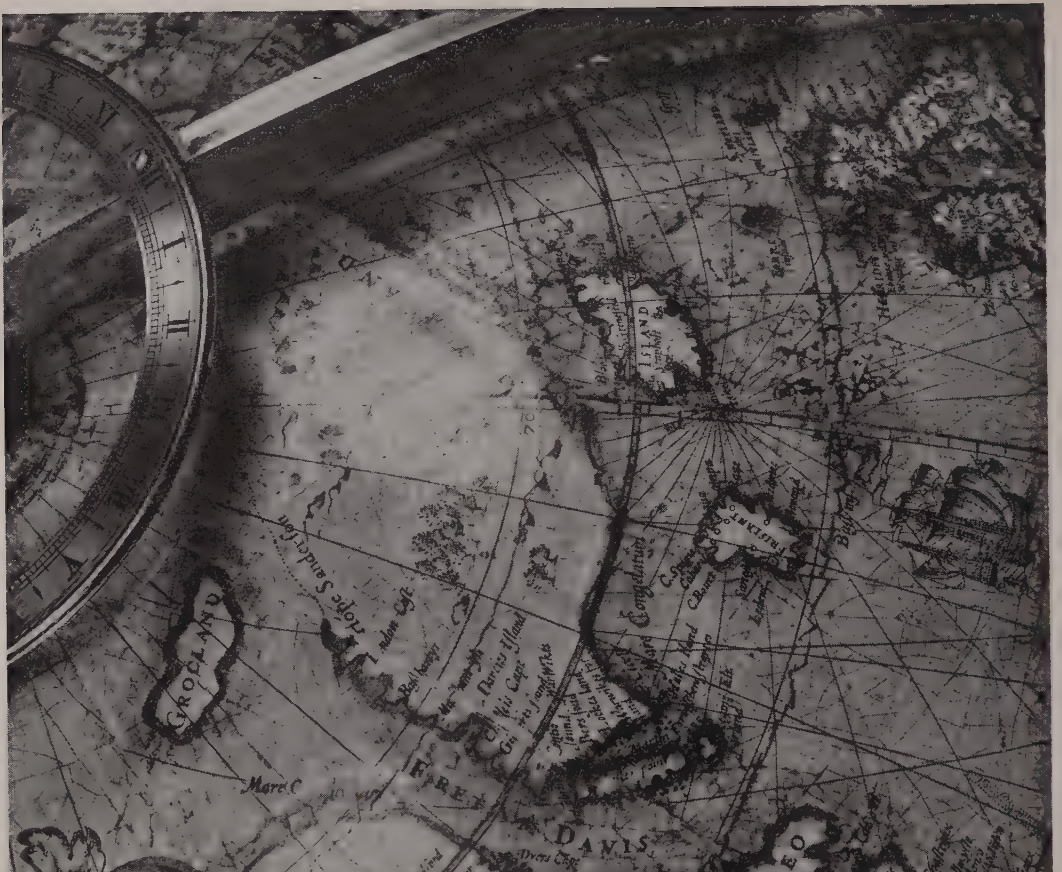


By courtesy of the Free Library, Philadelphia, and the Royal Geographical Society

bearing ore; but on his third voyage he sailed 200 miles into Hudson Strait—"The Mistaken Straightes" in James Beare's chart (Fig. 2). Frobisher's voyages disappointed their promoters and, as Michael Lok wrote in 1579 with the bitterness of a ruined man, "now the passage to Cathay is by him left vnto vs as vncertain as at the beginning". Yet the Asiatic appearance of the captive Eskimos or "strange men of Cataye" whom he brought to England, "much like", suggested Lok, "to the Tartar nation", encouraged belief in access to Cathay by the north-west.

Lok himself had lost faith in Frobisher but not in the Passage. Richard Hakluyt, reprinting Thorne's papers and Verrazano's narrative in his *Diuers voyages touching the discouerie of America* (1582), pointed to the possibility of a land passage, laid down on the map (Fig. 3) which Lok drew for Hakluyt from "an olde excellent mappe which [Verrazano] gaue to Henrie the eight, and is yet in the custodie of master Locke". As a base for discovery and command of the passage, Hakluyt advocated a western colony; but he did not fail to notice the "great probabilitie, of a passage by the North-west part of America".

Fortified by this propaganda, a syndicate headed by William Sanderson promoted a new search for the North-West Passage. John Davis's first voyage, in 1585, took him into Davis Strait to a latitude of nearly 67° N and, writing to Sir Francis Walsingham on his return, he affirmed that "the northwest passage



By courtesy of the Honourable Society of the Middle Temple

(Fig. 5) The North-West Passage on the terrestrial globe of Emery Molyneux, 1592. The coasts of "Fretum Davis" (Davis Strait) are laid down from information supplied by Davis, and the names in the strait, to his farthest north at "Hope Sanderson", are those given by him in 1587. "A furious overfall", likened by Frobisher to "the waterfall of London Bridge", indicates the opening of Hudson Strait. Frobisher's discoveries are incorrectly located in Greenland

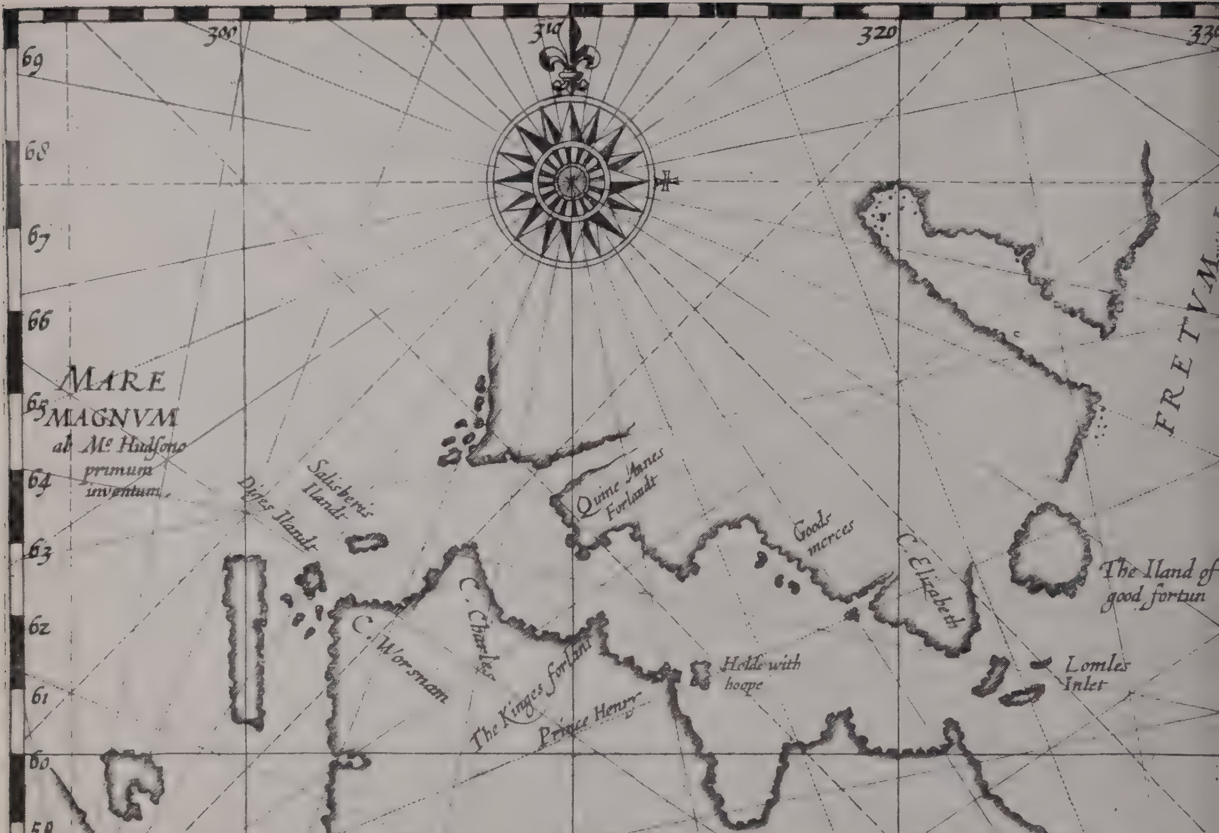
is a matter nothyne doubtfull but at any tyme almost to be passed, the sea nauigable, voyd of yse, the ayre tollerable, and the waters very depe." On his third voyage, in 1587, Davis penetrated his Strait to a point on the Greenland coast in 72° 12′ N, "naming the same Hope Sanderson", crossing the Strait and returning by Cumberland Gulf and the "furious overfall" of Hudson Strait, "a very great gulfe, the water whirling and roaring as it were the meetings of tydes." From Hope Sanderson Davis had seen "no ice towards the north, but a great sea", and the day after he landed at Dartmouth he wrote to Sanderson "I haue bene in 73 degrees, finding the sea all open. . . . The passage is most probable, the execution easie." Sanguine as this assertion may seem, Davis had in fact discovered the eastern entrance by which the North-West Passage was eventually to be navigated.

The charts which were doubtless drawn by so careful an observer have not survived; but "how far I proceeded," Davis wrote in 1595, "& in what fourme this discouery lyeth, doth appeare vpon the Globe which M. Sanderson to his very great charge hath published." This was the "very large and most exact terrestriall Globe . . . composed by M. Emerie Mollineux of Lambeth," announced by Hakluyt in 1589 and completed by Molyneux at Sanderson's expense in 1592. In the preparation of the first English terrestrial globe Davis certainly had a hand. He tells us that he was "the only meane with master Sanderson to imploy master Mulineux therein"; his discoveries are drawn with authority and precision (Fig. 5); and a legend on the globe has been plausibly interpreted as a record that Molyneux had sailed with Davis.

Of the four possible channels proposed by Davis in 1587 for further examination, those by Hudson Strait and by Davis Strait were to be the scene of the attempts made in the next half-century. The voyage made by Captain George Waymouth in 1602 apparently took him into Hudson Strait; "hee neither discovered nor named any thing more then Davis . . .", commented Luke Fox in 1635, "yet these two, Davis and he, did (I conceive) light Hudson into his Straights." Dutch expeditions led by Henry Hudson in 1607–8 had vainly sought a northern passage through the ice to the east and west of Spitsbergen; and his third voyage, prompted by "letters and maps which Captain Smith had sent him from Virginia, informing him of a sea leading into the Western Ocean" to the north of the English colony, had brought him as far south as the Hudson River in search of a passage. In 1610 Hudson was engaged by a London syndicate to follow up the strait entered by Waymouth, whose log-books he had seen at Amsterdam the year before. Passing through the strait, he sailed south "into a spacious sea . . . confidently proud that he had won the passage", and wintered in James Bay. Hudson, marooned by mutineers in an open boat, did not return, but—as the map of Hessel Gerritsz. (Fig. 6) shows—the survivors' reports were acclaimed as proof that the passage into the South Sea had been opened, and Captain Thomas Button was sent out in 1612 to exploit the supposed discovery. Before his return in the following year, Gerritsz. was writing "we do not think that we shall hear anything about them before they return . . . from East India or China and Japan", and the Company of the Merchants of London Discoverers of the North-West Passage had been incorporated.

Undeterred by Button's revelation of the western shore of Hudson's "spacious sea", extending from the Nelson River in the south to "Sir Thomas Roe's Welcome" in the north, the North-West Company dispatched a series of expeditions in search of a western outlet from Hudson Strait or the Bay. A considered opinion on the prospects of success in this quarter was given by William Baffin after his voyage with Robert Bylot in 1615 (depicted in Baffin's map, Fig. 7): "doubtles theare is a passage. But within this strayte whom is called Hudsons Straytes, I am very doubtfull, supposing the contrarye . . . We haue not been in any tyde then that from Resolutyon Iland, and the greatest indraft of that commeth from Dauis Strayts, and my iudgment is . . . the mayne [passage] will be upp Fretum Dauis."

On this northerly route, three Danish expeditions in 1605–7, with the Yorkshireman James Hall as chief pilot, and an English expedition in 1612 under Hall and Baffin had already explored the west coast of Greenland. Hall's narrative of 1605 is illustrated "with representations of Land-sights curiously delineated", perhaps by Josiah Hubbard of Hull (Fig. 8), whose "plat" of Hudson Bay is also mentioned on Briggs's map (Fig. 9). In 1616 Bylot and Baffin were sent out by the Company with instructions to "keepe . . . up Fretum Davis, untill you come toward the height of eightie degrees . . . then West and Southerly . . . to the latitude of sixtie degrees: then direct your course to fall in with the Land of Yedzo about that height." This expedition reached nearly 78° N in "Baffin's Bay" and recorded the openings from it to



MARE MAGNVM ab Mr Hudſono primum inventum.
Salisberis Ilandt
Diges Ilandt
Quine Annes Forlandt
Goods merces
C. Elizabeth
The Iland of good fortun
FRETVM
C. Worsnam
C. Charles
The Kinges forland
Prince Henry
Holde with hoope
Lomles Inlet
The bay where Hudson did winter
The bay of Gods merces
Longa nimis longo via dividit æquore Seras,
Nec patiens tantæ eſt mens generoſa moræ:
Dixit, et occiduos petit imperterritus Indos
Hudsonus, ut methodo rem breviore paret.
Iamq; fretum ſuperare novum, jam cœperat auſis
Præmia ſpondere ac pænè videre ſuis:
Cum remoram tantis injecit nautica rebus
Turba, nec inſonti parcere gnara viro.
Sed remoram, pergit noster, vel vincere certus
Vel (quod o avertant numina ſancta) mori.
Audi vota Deus, faſtiſq; hunc adde Britannis
Servato nuper Principe clare, diem.
300
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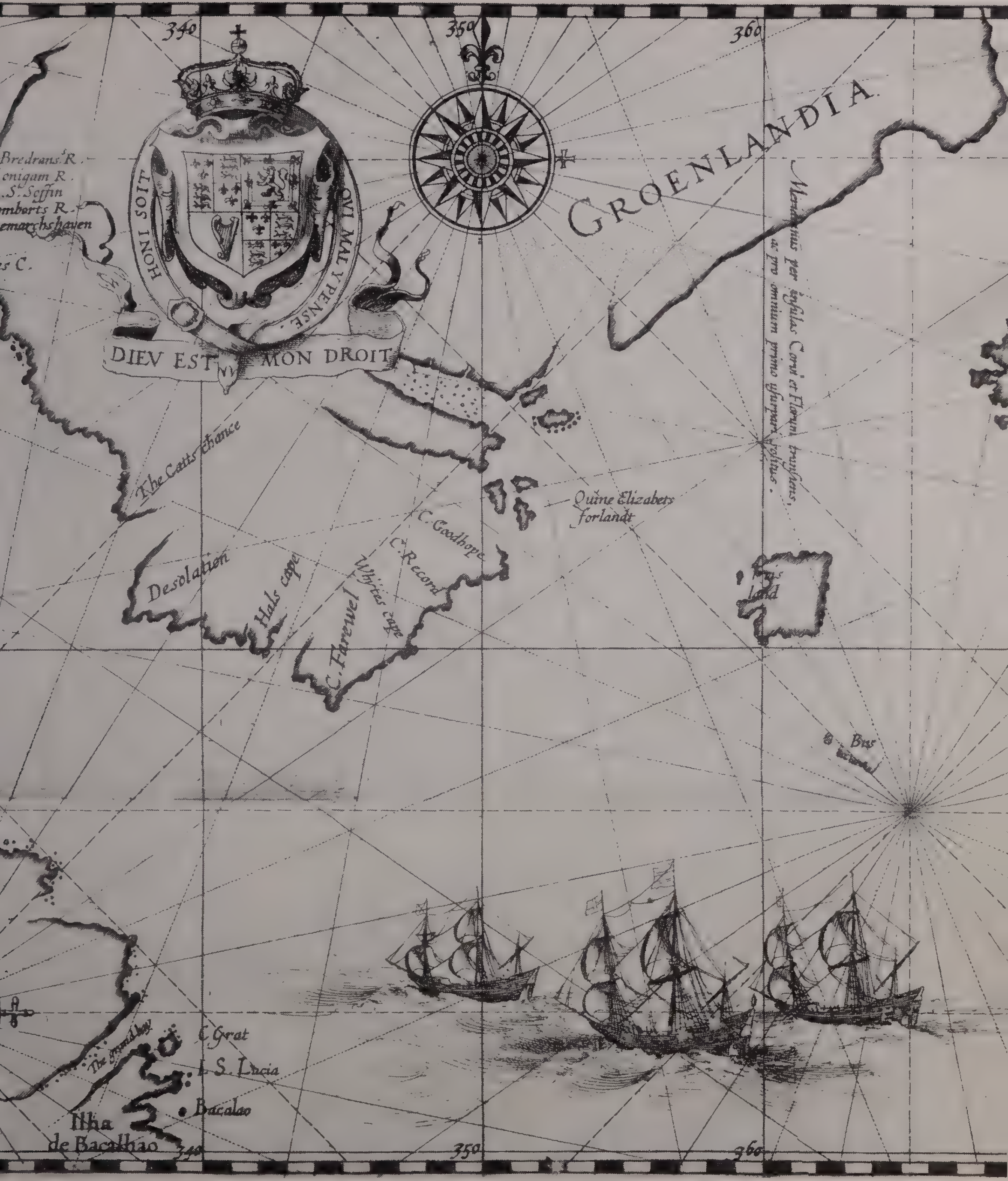
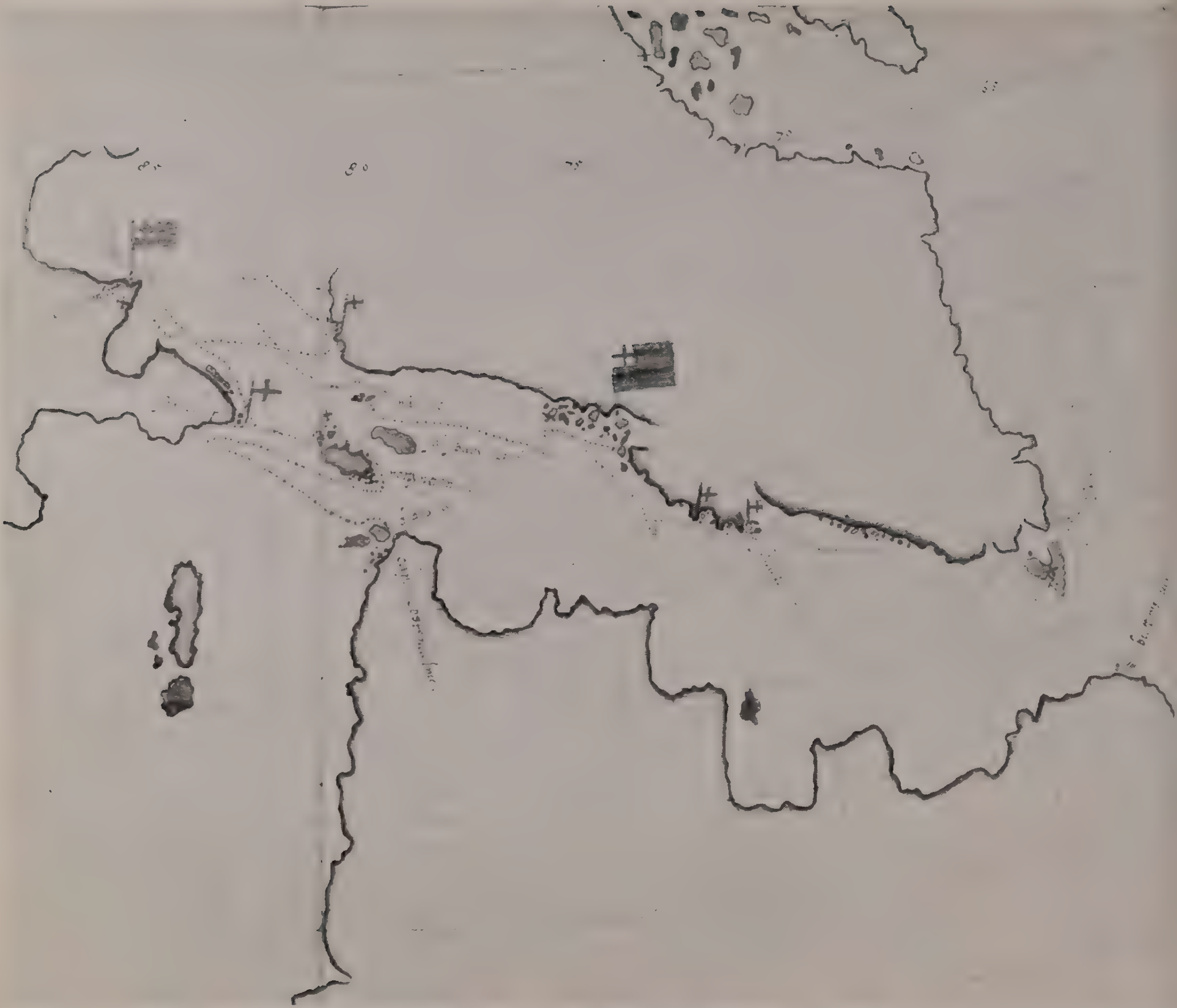
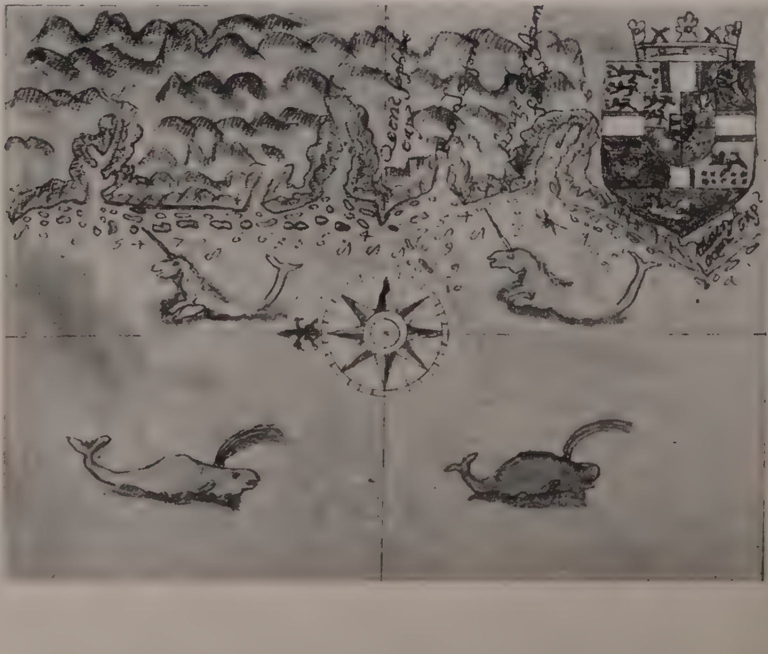
(Fig. 6) Chart of Henry Hudson's discoveries in 1610–11, engraved by Hessel Gerritsz. at Amsterdam in 1612. On the return from his second voyage in 1608, Hudson had "resolved to make triall of that place called Lumleys Inlet, and the furious overfall by Captain Davis". This was the object of his last voyage. Entering Hudson Strait, he explored (wrote Gerritsz.) "all the shores laid down in his chart to 63°", giving them the English names in Gerritsz.'—

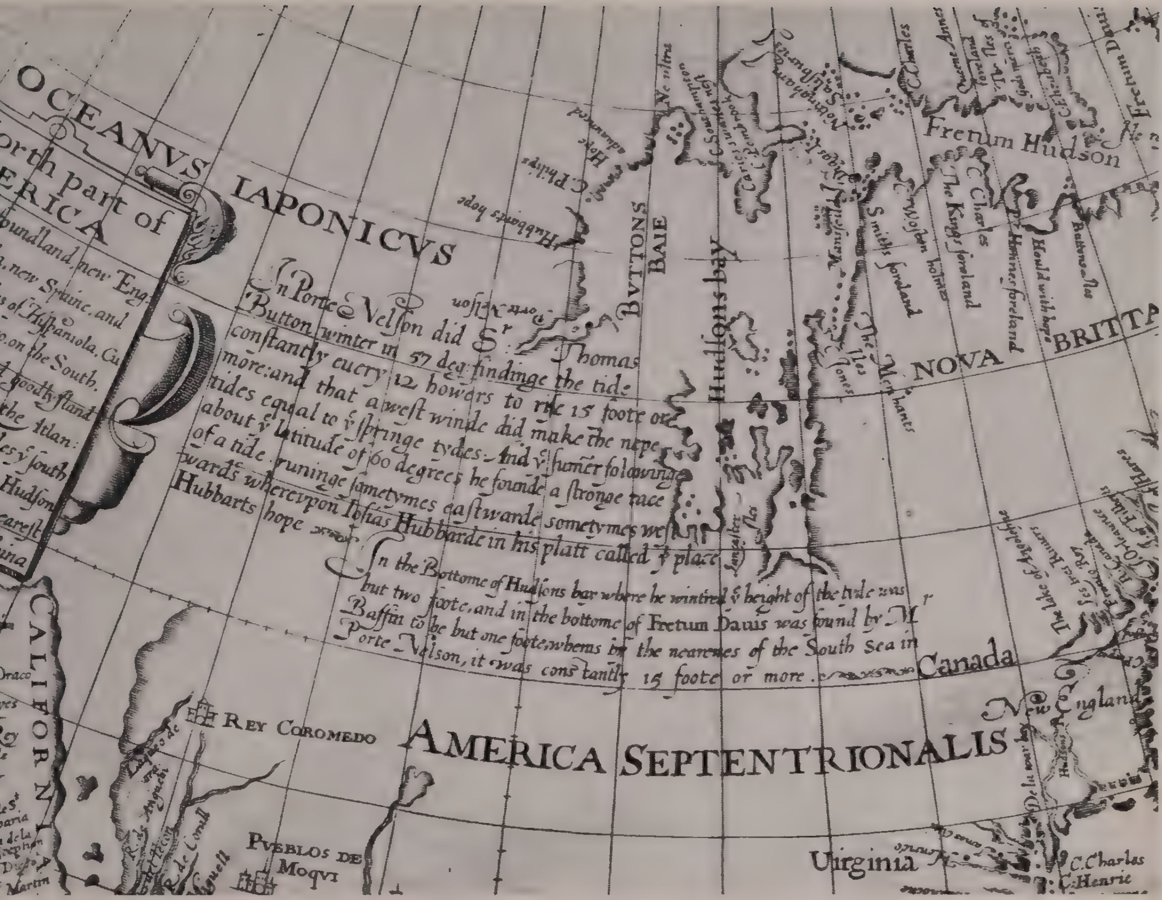


—chart. After wintering in 54° (James Bay), he sailed north into "a wide sea" (Hudson Bay) with strong tides, which inspired in him "no small hope of a passage". As on the Molyneux globe, Frobisher's discoveries, e.g. "Quine Elizabets forlandt", are wrongly plotted by Gerritsz. in south-east Greenland. This persistent error goes back to the crude printed maps of Frobisher's voyages, for example Fig. 2, in which "Groenland" lies to the north of Meta Incognita





(*Fig. 7:* above) *William Baffin's map in the manuscript log of his voyage in 1615 marks by a "red prickle line" his track into Hudson Strait and the mouth of Foxe Channel, and by crosses the places where he landed "to make tryall of the tyde".* (*Fig. 8:* right) *A chart, with soundings, of the west Greenland fjords north of Queen Anne's Cape in 66° N, from Hall's manuscript report to the King of Denmark on his expedition of 1605*

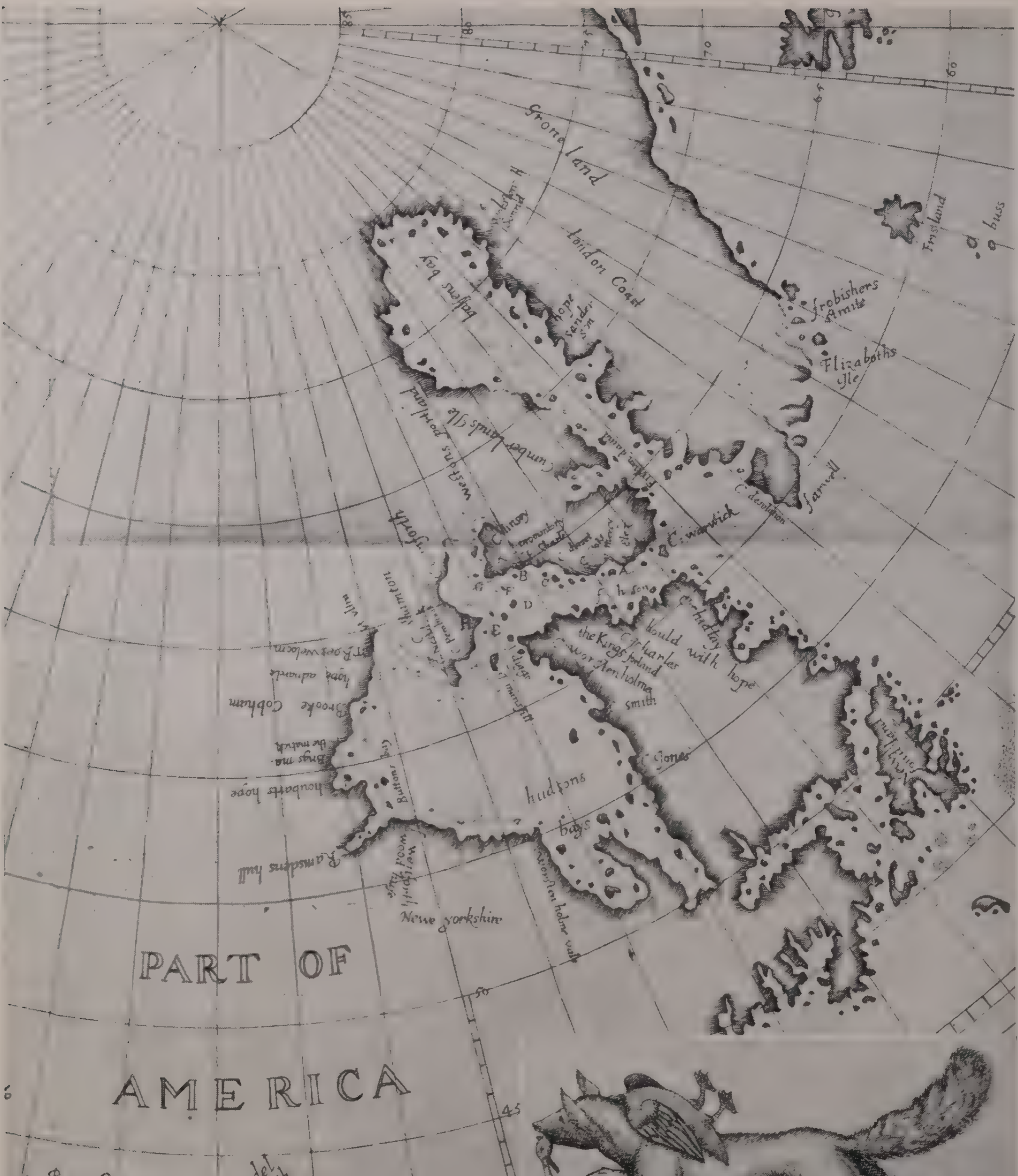

OCEANVS IAPONICVS
North part of America
Newfoundland, new England, new Spaine, and ... of Hispaniola, Cu... on the South, ... goodly Iland ... the Atlan... ...es ye south ... Hudsons ... nearest ... ...na
In Porte Nelson did Sr Thomas Button winter in 57 deg: findinge the tide constantly every 12 howers to rise 15 foote or more: and that a west winde did make the nepe tides equal to ye springe tydes. And ye sumer folowinge about ye latitude of 60 degrees he founde a stronge race of a tide runinge sometymes eastwarde sometymes westwards whereupon Iosias Hubbarde in his platt called ye place Hubbarts hope
In the Bottome of Hudsons bar where he wintred ye height of the tide was but two foote, and in the bottome of Fretum Dauis was found by Mr Baffin to be but one foote, wheras in the nearenes of the South Sea in Porte Nelson, it was constantly 15 foote or more.
Hubbarts hope
C. Philips
Hopes advance
Ne vltra
Port Nelson
BVTTONS BAIE
Hudsons bay
Fretum Hudson
C. Charles
The Kings foreland
Smiths foreland
The Iles Iones
The Merchantes
NOVA BRITTA...
Canada
New England
Virginia
C. Charles
C. Henrie
AMERICA SEPTENTRIONALIS
REY COROMEDO
PVEBLOS DE MOQVI
CALIFORNIA
Fretum Dauis
Mansfeild
Queene Annes foreland
The Iles of gods mercies
Buttons Iles
Hold with hope
The lake of Iroquoise
Hudsons river
Dela ware bay

(*Fig. 9*) *This map by the mathematician Henry Briggs, published in* Purchas His Pilgrimes *in 1625, indicates several openings out of Hudson Bay to the west. The height of the tides in Port Nelson, where Button wintered in 1611–12, is quoted as evidence of "the nearenes of the South Sea". Hudson and James Bays bear their original names of "Buttons Baie" and "Hudsons bay" respectively*

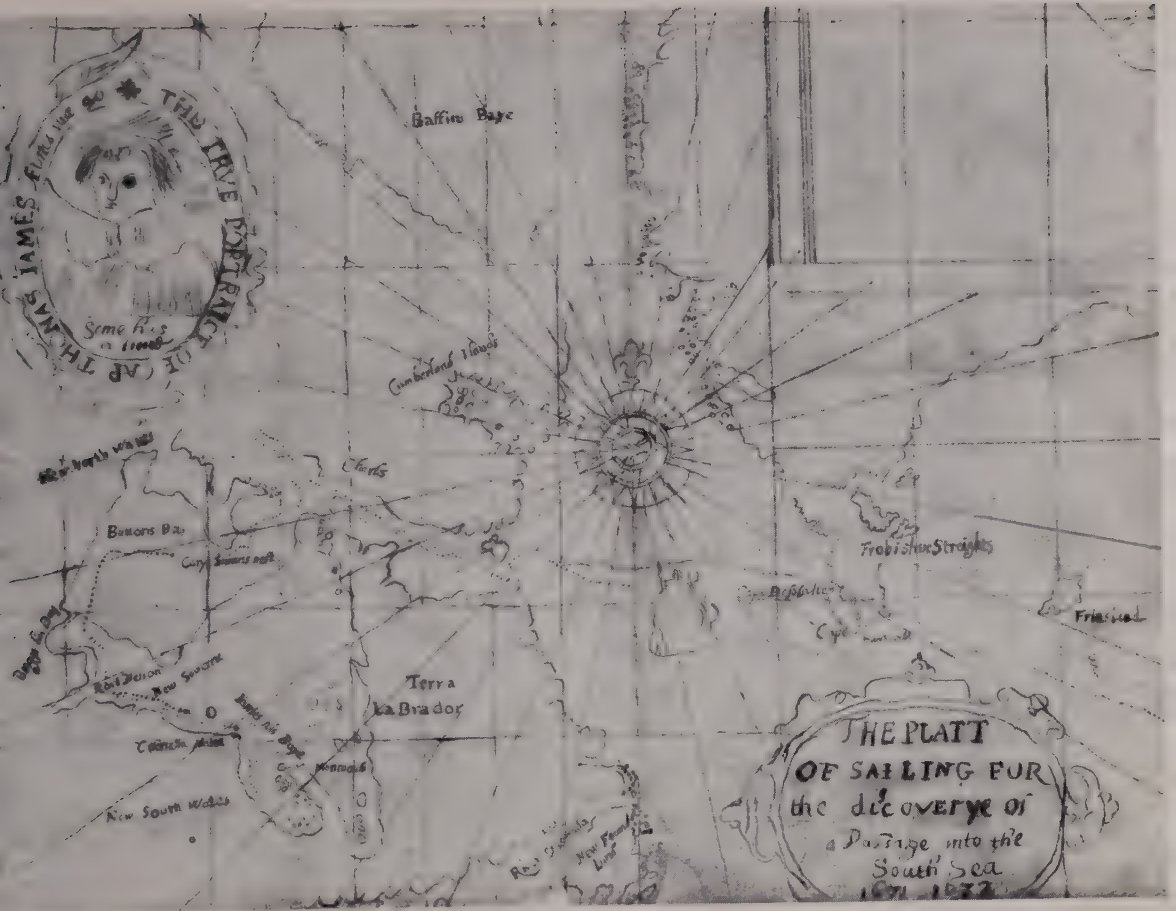
north and west (Smith, Jones and Lancaster Sounds), thus pointing to the true North-West Passage. Foxe's map (Fig. 10) perhaps reproduces the outline of Baffin's lost chart of this voyage. Baffin, a level-headed man, reported to his employers that "there is no passage, nor hope of passage in the north of Dauis Streigths, wee hauing coasted . . . the Circumference thereof, and finde it to be no other then a great Bay"; but as a "probabilitie or hope of profit" he recommended the "killing of Whales" and "of Sea-Morse [walrus]". Here we see the motive of a quick commercial return displacing the remoter prospects of a northerly trade route to the Far East.

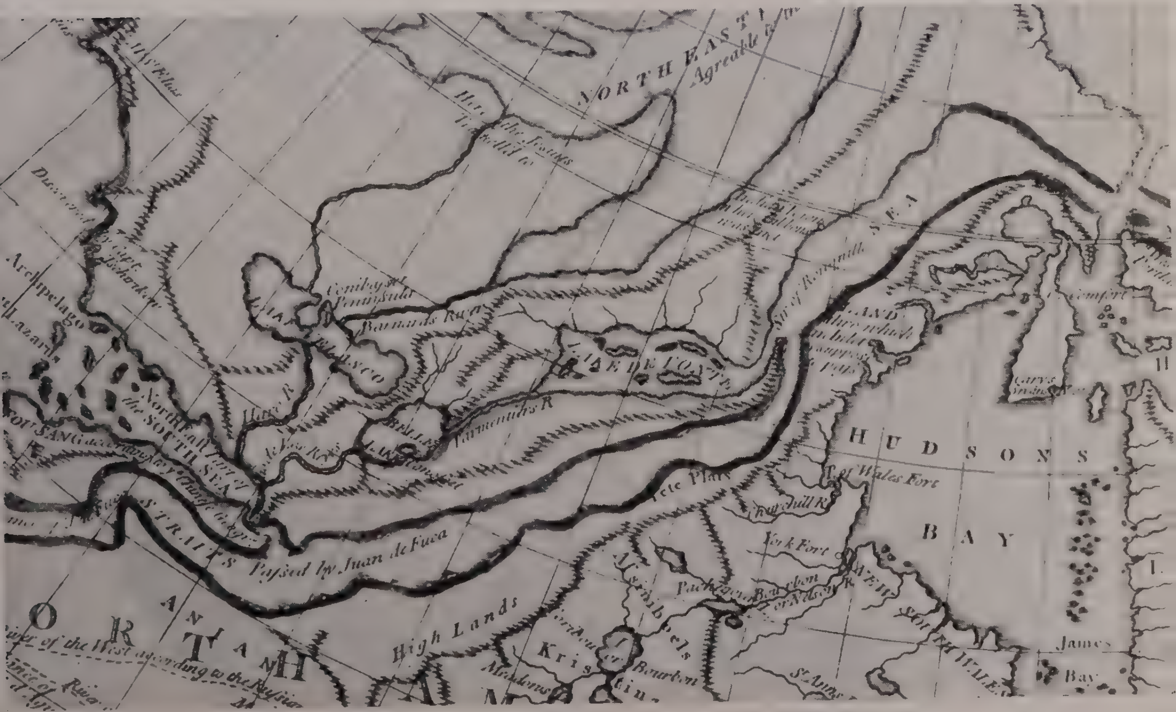
Ten years later, as Henry Briggs's map (Fig. 9) indicates, the North-West Company could still believe in a communication by water between Hudson Bay and the Pacific. In 1631 two expeditions sailed for the Bay, under Captains Luke Foxe of Hull and Thomas James of Bristol. Both captains searched the western shore of the Bay. Foxe's course, drawn on his "Polar Map or Card . . . rough-hewen, like Shipwright's timber" (Fig. 10), led him to the entrance of Foxe Channel in the north. James, after meeting Foxe, who told him "you are out of the way to Japon, for this is not it", in the south of the Bay, wintered like Hudson in James Bay. In his "Platt of Sailing for the discoverye of a Passage into the South Sea" (Fig. 11), this bay, hitherto called after Hudson, first bears its modern name, although Hudson Bay is still called "Button's Bay". The supposed western outlet from Hudson Bay disappeared from 17th-century charts, and no serious attempt on it was made for over a century after Foxe and James.

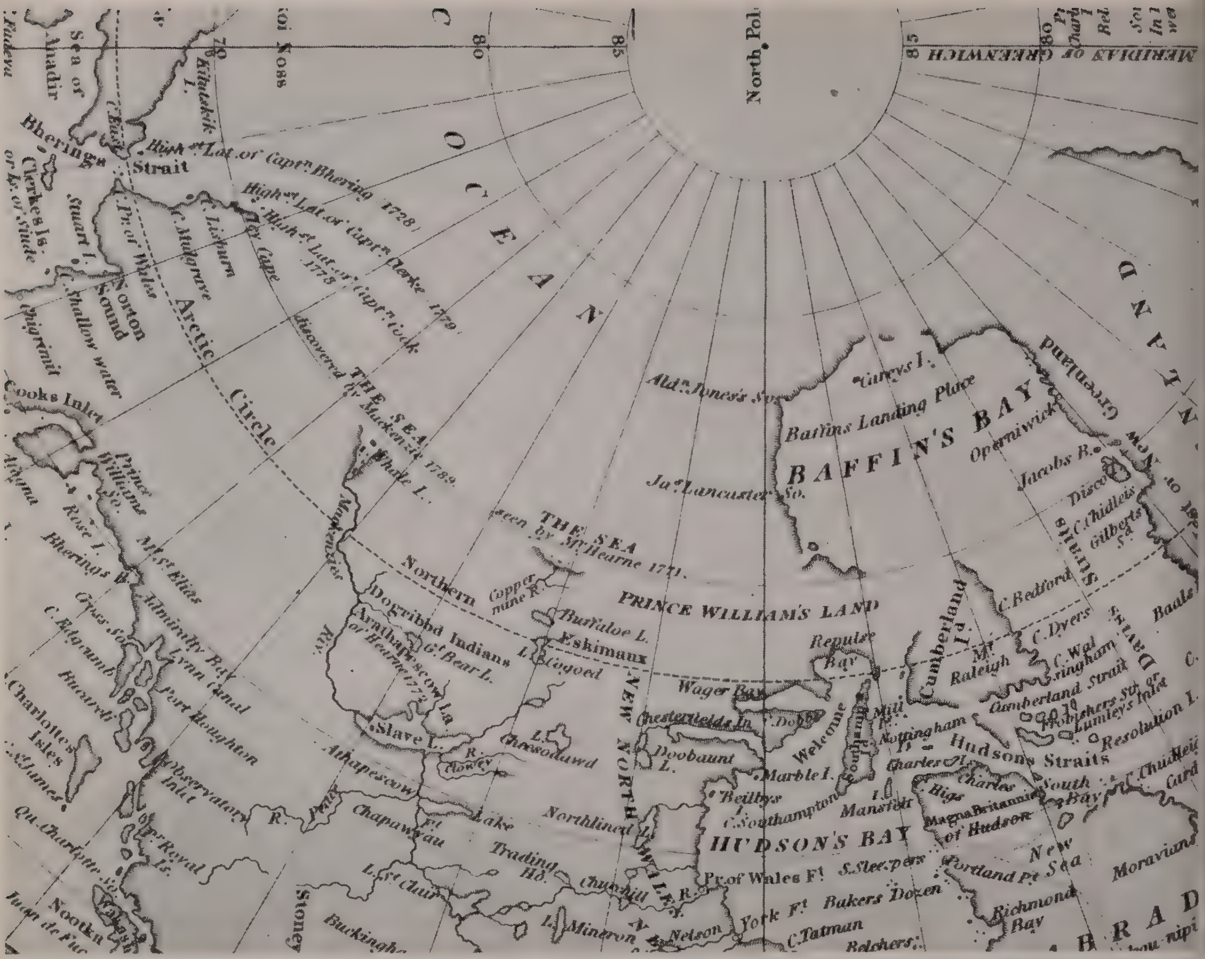
In the north-west, as earlier in the north-east, enterprise was now diverted from dis-



(*Fig. 10:* above) *Part of Foxe's "Polar Map or Card", showing his course in 1631, from his book* North-West Fox, *1635; with (inset) his emblem. After traversing Hudson Bay he extended Baffin's exploration (cf. Fig. 7) until checked by ice at "Foxe's Farthest" in 66° 47′ N. Frobisher's discoveries are still wrongly charted.* (*Fig. 11:* opposite, top) *James's manuscript "Platt" marks his track in 1631–2 along the western and southern shores of Hudson Bay to winter quarters in "James his Baye", here first so named.* (*Fig. 12:* opposite, bottom) *Jefferys's map of 1768 reflects 18th-century opinion on hypothetical communication by sea between Hudson Bay and the Pacific. The supposed passages of Juan de Fuca and Fonte converge in 63° N and run into Foxe Channel*


THE TRVE ENTRANCE OF CAP THOMAS IAMES
Some tymes a time
Baffin Baye
Cumberland Ilands
Charles
New North Wales
Buttons Bay
Cary Swans nest
Port Nelson
New Severne
James his Baye
Monmouth
New South Wales
Terra LaBrador
Frobisher Straights
Cape Desolation
Friesland
New Found land
THE PLATT OF SAILING FOR the dicoverye of a Passage into the South Sea 1631 1632

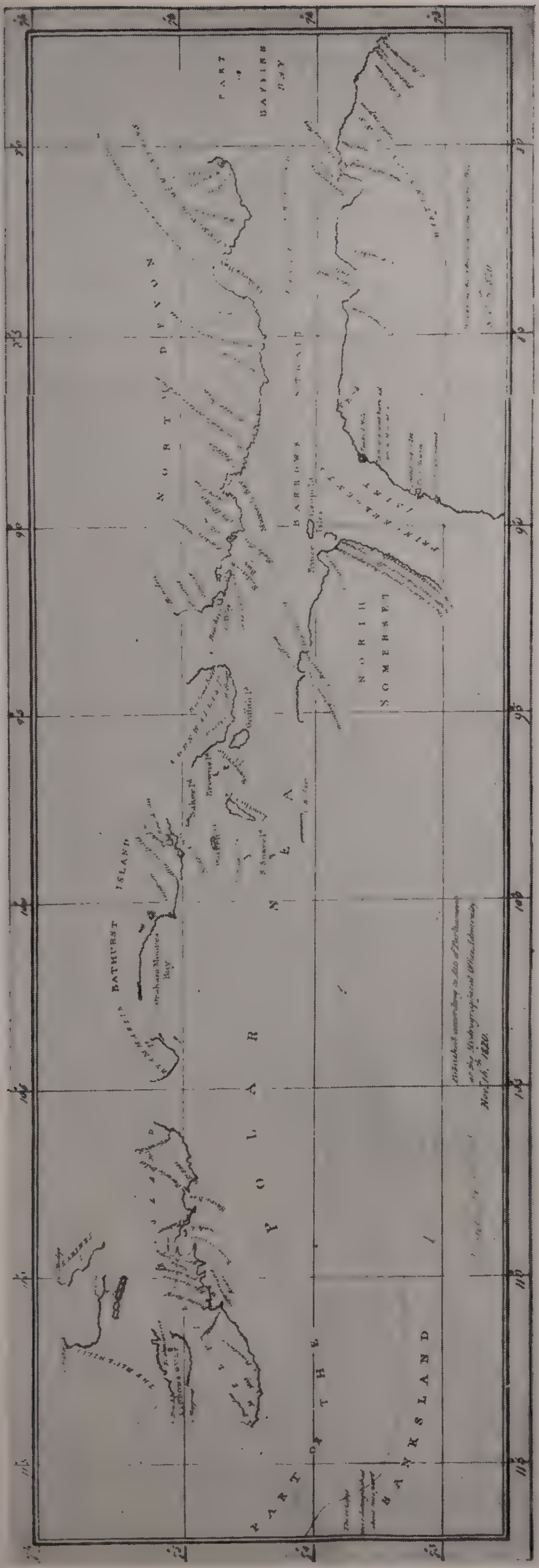

NORTH EAST
Agreeable to the
Archipelago
Conibasset Peninsula
Bernards Riv
LAKE DE FONTE
BELLES LAKE
Parmentiers R
North Part of the SOUTH SEA
STRAITS Passed by Juan de Fuca
HUDSONS BAY
Pr of Wales Fort
Churchill R
York Fort
NEW SOUTH WALES
High Lands
Carys Swans Nest
Comfort
James Bay
River of the West according to the Russian



(*Fig. 13*) *The 18th-century expeditions whose work is recorded in this map of 1818 reached three points on the American Arctic coast and eliminated conjectural channels westward from Hudson Bay; but the sounds leading out of Baffin Bay were unexplored, and its northern coasts could still be thought continuous. Parry's voyage of 1819–20, illustrated by the Admiralty chart of 1820 (Fig. 14:* opposite) *corrected this. Reaching Melville Sound ("Part of the Polar Sea"), he wintered there*

covery to trade. After the manner of "proud and privileged" corporations, the Hudson's Bay Company, formed in 1670, preferred the immediate profits of the fur-trade to speculative ventures further afield. Publicists of the 18th century however, with characteristic ingenuity, revived, and adapted to the known geography of Hudson Bay, the old tales of navigable western passages to the Pacific in temperate latitudes. The Strait of Juan de Fuca still haunted the minds and maps of geographers; and an "adventurous piece of geography" launched in a London periodical of 1708 engendered belief in a channel supposed to have been found by a Spanish Admiral de Fonte in 1640. Careful examination of the western shores of Hudson Bay by a series of expeditions between 1741 and 1747 failed to dispel these illusions, and in 1745 a government reward of £20,000 was offered for the discovery of a western outlet from the Bay to the Pacific. As late as 1768 Thomas Jefferys, Geographer to the King, speculating on the "Great Probability of a North West Passage, deduced from observations on the Letter of Admiral de Fonte", could conclude that "the proper passage is up the Streight of *de Fuca*, therefore that is the proper Streight of *Anian*" (Fig. 12), but could indicate only one possible entrance for the strait on Hudson Bay.

All these fictitious passages were finally deleted from the map by the land journeys made from Canada by Samuel Hearne, down the Coppermine River in 1770–1, and by



Alexander Mackenzie, down the Mackenzie River in 1789 (Fig. 13). The supposed western outlets of the "invisible, because imaginary" straits were disproved by the surveys of the north-west coast of America by Captain Cook (1778) and Captain George Vancouver (1791–5). These investigations, as Vancouver wrote, "set aside every opinion of a North-west Passage . . . existing between the Pacific and the interior of the American continent". The instructions for Cook's last voyage had revived earlier projects, from the time of Drake, for discovering the western entrance of the Passage off the north-west point of America. After examining rivers and inlets "pointing towards Hudson's or Baffin's Bays", he was to proceed "to the northward . . . in further search of a north-east or north-west passage, from the Pacific Ocean to the Atlantic Ocean, or the North Sea". Having passed through Bering Strait in 1778, he reached Icy Cape (Fig. 13) before returning south to winter.

Three centuries after Thorne wrote, all three northern passages proposed by him could still be considered feasible, if no longer commercially profitable. John Barrow, Second Secretary of the Admiralty, writing in 1818, maintained that, of the three routes, "that by the north-east holds out the least encouraging hope"; but this was in fact the first to be traversed throughout in a single vessel. Barrow could still hold "the attempt to approach the North Pole . . . notwithstanding the failure of the late Lord Mulgrave [C. J. Phipps]" to be "by no means a hopeless enterprise", just as Thorne with Tudor boldness had offered "to attempt, if our Seas Northward be nauigable to the Pole, or no". But to Barrow "the discovery of a north-west passage to India and China has always been considered as an object peculiarly British"; and, while he wrote, a British expedition was already at sea. Unlike former theorists, Barrow could soberly assess the difficulties of navigation in Arctic channels; he criticized earlier navigators for clinging to shores where they could be caught in pack-ice, and advocated open sea passages. His doctrine was exemplified by Captain W. E. Parry who in 1819–20 took his ships through Lancaster and Barrow Sounds to winter on Melville Island (Fig. 14). Parry's voyage thus answered the outstanding question posed by Barrow, whether Greenland were an island or had a land connection with America which would close the North-West Passage; and he opened the way to the great series of 19th-century expeditions which led to the discovery of the Passage.

Crouch—the Battle River

by BEA HOWE

One of the most popular of yachting waterways on the East Coast is the Crouch, once known as the Battle River on account of the many savage forays made along its banks first by landing-parties of invading Saxons and then by Danes, intent on occupying England.

Only about twenty-five miles from mouth to source, fifteen miles of which is navigable, the Crouch flows at the swift rate of 2¼ knots at Springs and 1¾ at Neaps. As its ebb is far stronger than its flood, it is a dangerous river for all but powerful swimmers. At low tide, its mud flats glisten like pewter in strong sunlight and, hemmed in by rusty saltings, are haunted by rare birds, particularly during the migratory and breeding seasons. Samphire, which makes an excellent pickle when bottled in vinegar, abounds in its creeks and so do the pretty mauve sea-lavender and other aromatic tidal plants. In summer glasswort, transparent as emerald-glass in the first weeks of spring, takes on a ruby colour and the Crouch saltings glow as if struck by fire. Out on the enormous wide stretches of the Dengie Marsh that guards the mouth of the Crouch one can walk along the sea wall for miles, meeting no-one. Of this landscape Rider Haggard wrote in *Rural England* :

> The view looking over the Dengie Flats and St Peter's Sands from the summit of the earthen bank which keeps out the sea, was desolate and strange. . . . To the north, on the horizon a line of trees; to the west over the great plain, where stood one or two lonely farms, another line of trees. On the distant deep some sails, and in the middle marsh, a barge gliding up a hidden creek as though she moved across the solid land. Then, spread like a golden garment over the vast expanse of earth and ocean, the flood of sunshine, and in our ears the rush of the north-west gale, and the thrilling song of the larks hanging high above the yellow, salt-soaked fields. Such seemed the Dengie Marsh as I saw it in June 1901.

During the Saxon times the Dengie Hundred was known as *Witbrietisherne*. According to Salmon, "by *Herne* may be meant a Horn or Peninsula, as this Hundred is" (*History of Essex*). The later name *Dengie* is said to be a corruption of *Danesye* or *Danesig* (i.e., Dane's Isle). In the old days its inhabitants were known as "Deningers".

But the yachtsmen who slip away from Burnham pool with its hundreds of tapering masts and sail up-stream to Fambridge and Battlesbridge would be surprised to see the mere trickle of water the Crouch has become only a few miles further on at Laindon Common. Here, in a tufty withy-bed, beside a small bridge spanning the quiet country road which runs from Billericay to Laindon village, its well-hidden spring bubbles up. Close by stands the magnificent 14th-century tower of Great Burstead Church, the overflow of whose ancient well, dedicated to St Cedd, forms the first tributary received by the infant Crouch.

The known history of Great Burstead begins in A.D. 527 when the first Saxons landed in Essex under Erconwine, their king. Tall fierce blue-eyed men, they came sailing up the Crouch in their long flat-bottomed boats with one square sail not unlike that of the Thames barges. These were the men who, as East Saxons, gave Essex its name. "Sax" probably meant a knife or sword; this is recalled in the three swords of the county coat-of-arms.

The Saxons pushed northwards along the river and built their first stockade on a hill two miles south of Billericay. So Burghstede (later Burstead), which means the site of the fort, was founded and Odda, one of Erconwine's leaders, became the first Thane of Great Burstead. He built Burstead Manor, now known as Grange Farm. On the same little low hill where stood the Saxon fort, overlooking the head waters of the Crouch, there rises today the dramatic tower of Great Burstead Church.

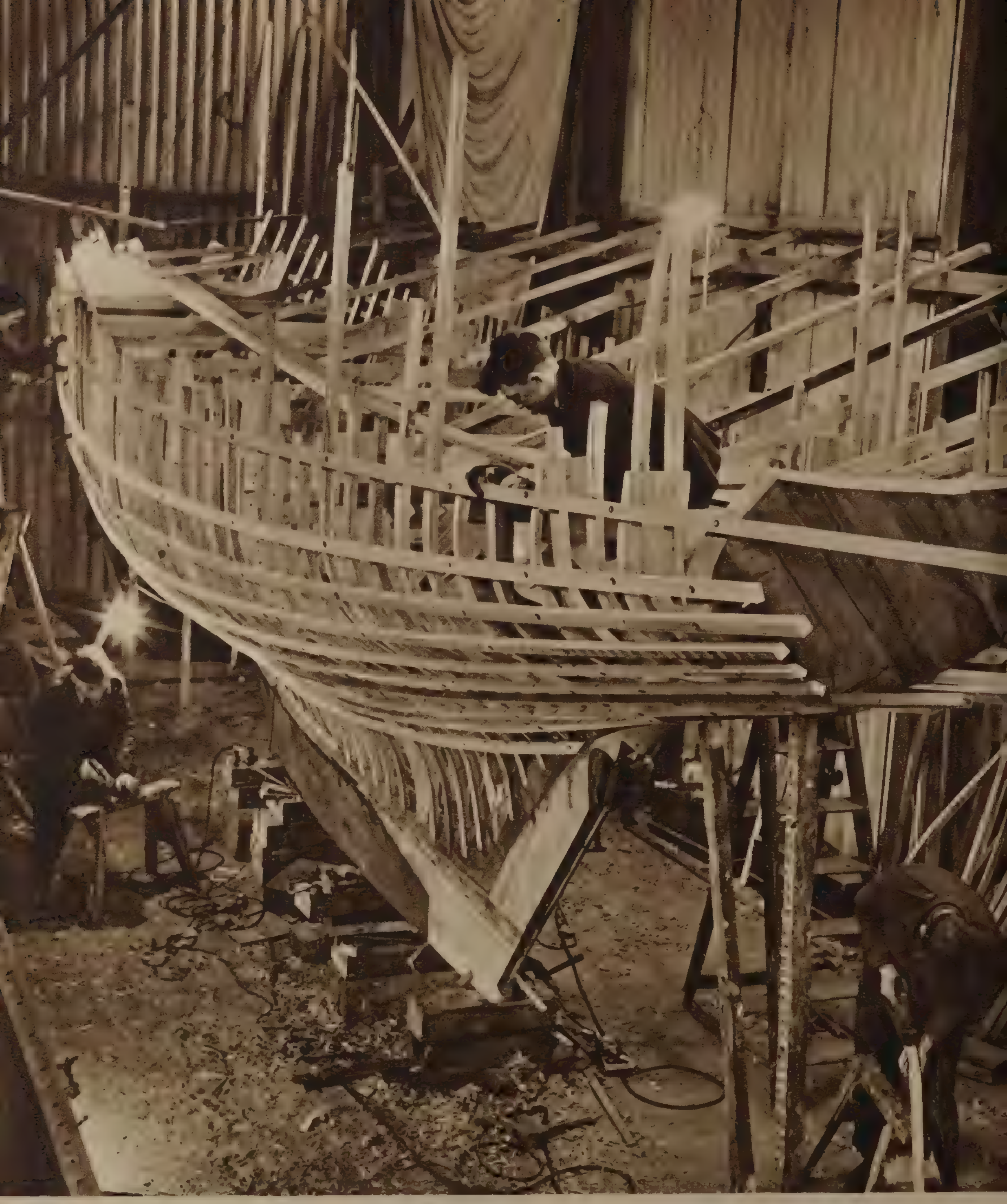
In A.D. 800 a new wave of invasion came from overseas. Up the Crouch again, and other easily accessible estuaries on the Essex coast, they came, the wild Norsemen, in their long narrow ships, shield-hung. During the summer months they robbed and burnt the homesteads in the Crouch valley, putting men, women and children to the sword, before returning home with their spoils at the approach of autumn. During the war which raged now over a period of years between resident Saxons and invading Danes in Essex two great battles were fought. One of these was the Battle of Maldon between Brihtnoth the Alderman of Essex and Olaf the Dane, which has been vividly described in one of the few and great remaining Saxon poems;

John Ta

Softly, through shrouding mists, the moon shines down upon the desolate saltings and creeks of the Dengie marshes. Little has changed, in this eerie world, since before men's battles began

John Tarlton

(Above) *At Hullbridge where Canute the Dane once anchored his long narrow ships and the din of battle was heard, the old ferry-boat still makes its slow way across the unruffled water.* (Below) *In clear spring sunlight, with the boughs of the encircling trees throwing a delicate pattern of young leaf on the walls, the little church of Ashingdon stands on its historic hill, where Canute fought the Saxons in 1016*



John Tarlton

The age-old boat-building yards of Burnham lie along her busy waterfront. From the yards comes many a fine yacht destined to sail other waters than those of the Crouch

John Tarlt

Taking time off for a quiet pull at his pipe, this Burnham boat-builder, master of his craft, sits in the sun, happy and contented, as he surveys the river flowing quietly by

Douglas Went

(Top) *The East Coast One-Design racing yachts—a traditional and lovely type of sailing craft—are a local product peculiar to Burnham.*
(Bottom) *A majestic fleet of grain and coal barges, now sadly dwindling, for centuries has sailed regularly up and down the River Crouch*

Douglas Went

The last week in August sees the Crouch in full gala dress for Burnham Week. Besides entrants from resident clubs, many visiting yachts assemble to compete in the week's programme of racing. Every hotel is crowded and the little town is en fête the other was the Battle of Assandun (now Ashingdon), fought high up on a green slope overlooking the shining waters of the Crouch, between Canute, son of King Sweyn of Denmark, and Edmund Ironside, King of the East Saxons. Of this historic and fiercely contested fight Southey wrote: "No former battle ever proved so disastrous to the people of this island; except the Battle of Hastings, no later one."

Intent not on mere foraging but on an organized campaign of conquest, Sweyn and his son, Canute, had arrived in England in 1013. Three years later Canute's fleet of long narrow boats was moored at Hullbridge just below Battlesbridge where the Crouch becomes tidal. It was October and the thick winter mists would soon be closing in over the valley. Hearing that the Danes were ravaging the countryside, King Edmund, then with his troops on high ground at Hockley, determined to force Canute to give him battle on the Green Hill of Assandun. In the meantime Canute had taken cover at Canewdon (i.e., Canute's dun, or hill), where his camp may still be traced. A swampy plain divided the two armies. Canute was unwilling to fight but Edmund, successful till now in his encounters with the Danes, forced the issue and from three in the afternoon till sunset on October 18, the Feast of St Luke, a fierce battle raged about Ashingdon. All went well for Edmund until his treacherous brother-in-law, Edric Streon, Duke of Mercia, withdrew his men. Then confusion reigned. Nothing daunted, the brave Edmund fought on till the flower of his army was destroyed. He was forced to fly under cover of night, leaving Canute victor. A year later, the noble Ironside was assassinated and Danish rule made absolute. Four years later Canute, now crowned King, came again to Ashingdon, this time on a more peaceful errand:

> In 1020 went the King to Assandun with Earl Thurkyll and Archbishop Wulfstan and other bishops, and also abbots and many monks with them, and he ordered to be built there a minster of stone and lime for the souls of the men who were there slain, and gave it to his own priest whose name was Stigand, and they consecrated the minster at Assandun.

Today that remote little church guarded by tall shady elms still stands on the top of its green slope. Long ago pilgrims came to pay homage to a holy image housed inside; an image which was supposed to possess miraculous powers of healing. But it has long vanished. Recently restored, Canute's minster has the model of a Viking ship suspended in its nave which, together with the Banner of the Royal Arms of Denmark, were presented by Prince George of Denmark in memory of the historic battle.

A superb view of the whole of the Crouch estuary can be obtained from Ashingdon churchyard. Northwards, up-river, there stands like a great landmark the white ark-like structure of Battlesbridge Tidal Mill, built in 1771. There are few days when one cannot see the squat scarlet funnel or rust-brown sail of some sea-going tug or grain barge tied up to Battlesbridge wharf. Close by, at Hullbridge, is Brandy Hole, that used to be a famous rendezvous for smugglers on a dark night when they were sinking their 'run' casks at this exact point. Next come North and South Fambridge, once connected by ferry. Below these two river hamlets the Crouch takes a great S-bend round Bridgemarsh Island that guards Althorne Creek. Moored off the tip of Bridgemarsh used to be the famous old Thames barge, the *Petrel*, built at Ipswich in 1852, which won the Annual Medway Barge Sailing Match of 1951. With her bold, flaring bow and sweeping sheer, she lay, in bright sunlight or shrouded in winter mists, a dramatic feature of the river, recalling the days when a fleet of grain barges sailed regularly from the small river ports of the Crouch and Blackwater to London; boats that were exempted from paying river dues in honour of the historic grain fleet which did not once fail to bring their load of rich Dengie corn to London during the time of the Great Plague.

In the protective curve of a woody green point past Althorne cliffs lies Creeksea with its tiny hard. The inhabitants of this pocket-sized hamlet used to live by smuggling and oyster-dredging. In 1594 John Norden wrote in his *Description of Essex*:

> Some part of the sea shore of Essex yealdeth the beste oysters in England, which are called Walflete oysters; so called of a place in the sea between St Peter's Chappell and Crowche Creeke, where upon the verie shore was erected a wall for the preservation of the lande. And all the sea shore which beateth on that wall is called Walflete. It is a little full oyster with a verie greene fynn, and like unto this in quantitie and qualitie are none in this lande.

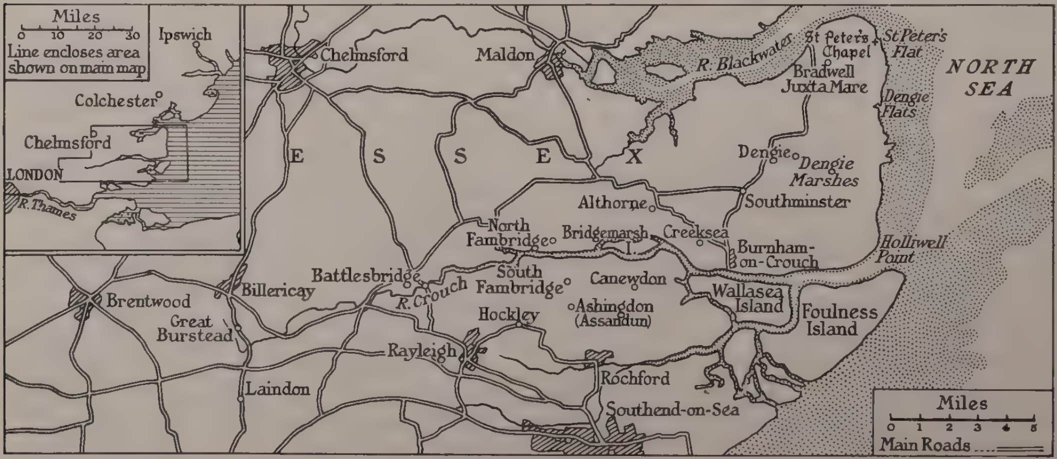
The layings in Cliff Reach at Creeksea are still worked and conditions are rapidly improving after years of neglect during the recent war. There has been a right of ferriage at Creeksea, too, for over 500 years and an interesting statement in the accounts rendered by Henry Crouchend, Bailiff to Sir Humphrey de Bohun, Earl of Hereford, Essex and Northampton and Constable of England in 1266, tells how "six oak planks were bought to repair 'Le Farebot', nearly worn out" which plied between Creeksea and Wallasea Island opposite.

With its charming and busy waterfront composed of small red-brick Georgian houses, Burnham-on-Crouch is by far the largest yachting centre on the East Coast. Weekends in summer are entirely given over to racing. The town's two main industries are boat-building and oyster-cultivation. Although but the shadow of its former self, the latter occupation has never been given up by Burnham fishermen and today excellent results are being obtained from freeing the local "oyster-layings" from their worst enemy—the American slipper limpet which is now collected and made into poultry food. Another cause of anxiety was the shortage of parent oysters with which to re-stock beds after the war. But since a Government Experimental Station has been set up at Burnham, conditions in the oyster trade are improving all round. Forty-five years ago Burnham Natives were advertised at 7s. 6d. a hundred and considered among the best oysters in the world.

Beyond Burnham the huge Dengie marshes stretch as far away as the eye can see to Holliwell Point where the mile-wide Crouch now reaches the open sea. Intersected by narrow dykes or "fleets", filled with water at high tide, these marshes are patrolled by herds of black-and-white cattle and rough-coated horses put out to fatten on the rich pasturage. Silhouetted against the sky-line are occasional groups of tarred weather-boarded buildings. These are the "Wicks" (i.e., dairy-farms) which have stood here for centuries. Even before the first Queen Elizabeth's reign, it had been recorded how people wondered "at the great and plentiful cheeses made in the Hundreds of Rochford and Dengey or Danesye". Where are those cheeses today? Vanished with other good things like a noble baron of beef or monster home-cured hams.

The marshes bordering the Crouch have always been places of eerie happenings. According to Stowe there came a strange plague of mice on them in 1580, when "they did sheare and gnaw the grasse by the roote spoyling and tainting the same with their venemous teeth, in such sort, that the Catell which grazed on them were smitten with a murrien and died thereof". Hot upon this plague of mice came a mighty flock of "Owles such as all the shires were able to yeeld", who soon ate up the mice.

During World War II, the Dengie Hundred was "sealed off" as a likely place for invasion and the people who live along the Crouch saw many an aerial battle take place in the sky overhead between German and English planes. Later, great bombers based at Bradwell Aerodrome (now dismantled) roared over the estuary on their way to Germany while the marshes received many a flying bomb and rocket, designated for London. Now as the white-winged yachts go peacefully once more about their holiday business and the Crouch flows, undisturbed, towards the North Sea, Deningers recall the very recent times when the Crouch lived up to its old historic name—the Battle River.



A. J. Thornton

The Ocean Stream

II. Land and Water Masses

by F. D. OMMANNEY

The author, whose twenty-four years of scientific research have taken him to the Antarctic, Arctic and Indian Oceans, surveys for us in a series of three articles the causes and character of ocean currents, how they differ from one another, and their effects on human and animal life. The first article, published in our July number, related to the currents of the Antarctic Ocean

In my previous article I referred to the great differences between the two poles. The Antarctic Continent has remained for a long period of geological time cut off from the other great land masses of the globe, far removed from the centres of dispersal not only of man and his civilization but also of the higher vertebrate animals. Even today it is still the Terra Australis Incognita, surrounded by leagues of stormy ocean and ramparts of ice, a proving ground for man's daring and ingenuity rather than a source of his wealth or power.

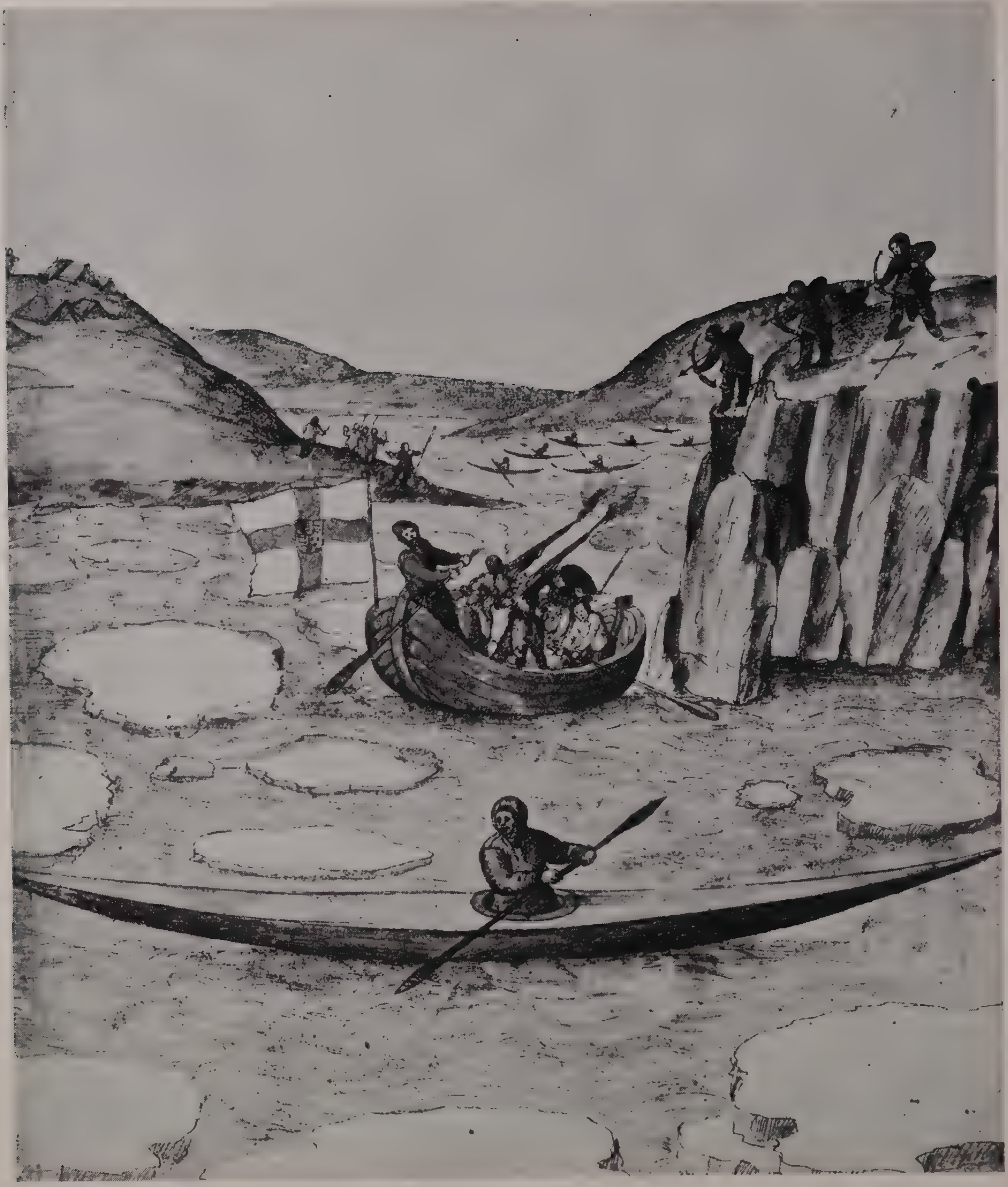
In these respects the Arctic regions are very different from the Antarctic. While the South Pole is situated in the middle of a vast land mass, surrounded by the Southern Ocean, the North Pole is situated in the middle of an almost landlocked sea-basin. Its shores are the coasts of great continents. Accordingly the climate of the lands bordering the Arctic Ocean, though rigorous enough, is mild compared with that of the Antarctic Continent. There is a brief but well-marked summer, during which the harsh earth is covered with grass and tiny flowers. And since, within the evolutionary span of the higher vertebrates, these regions have always been joined to centres of distribution farther south, they are inhabited by terrestrial birds, reptiles and mammals, many of which adapt themselves to the rigours of the climate by changing their plumage or their coat and hibernating with the onset of winter. Such mineral wealth as exists is accessible to man and there are coal seams which are worked on Spitsbergen. Man, represented by the Laplanders and the Eskimos, has made his home there and evolved a type of civilization and a way of life suited to the conditions.

Man's knowledge of the Antarctic regions, even now by no means complete, is of recent origin and his daring ventures into it have all been made since the end of the 18th century. The Arctic regions, on the other hand, lying so near to the centres of civilization and connected with them by land, have long been known to man and explored for hundreds of years.

About 2000 years ago the Red Indian aborigines of Canada, themselves of Mongolian origin, migrated northwards until they met the icebound coast. There they divided into two streams, one moving east to settle Baffin Island and south into Greenland and Labrador, the other moving west to the northern coast of Alaska and across the strait into Siberia. In Asia itself a similar northward movement populated the Arctic coast of Siberia with people of Mongolian descent. There the Chukchees and Samoyedes are the complements of the Eskimo.

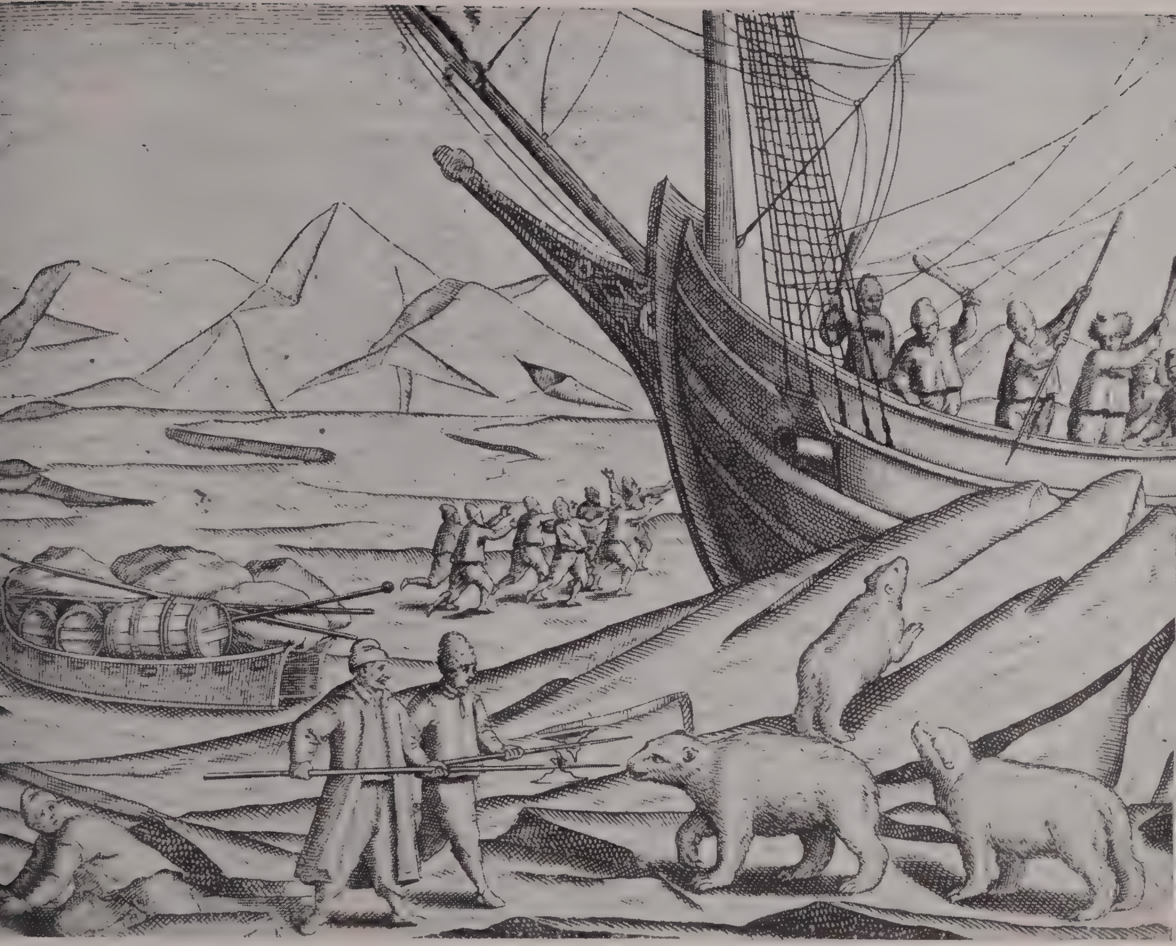
A thousand years later, in the 9th century A.D., the Norsemen knew these northern lands. They were the first navigators to leave the coasts and strike out across the open ocean. Thus they came to Iceland, Greenland and Labrador.

Fishing had been carried on in northern seas from the earliest times and it was known that though the waters bordering the Arctic Ocean are icebound during the winter yet every summer, for a few months, a navigable track emerges along the coasts of Asia and North America. Interest in this northern seaway began to be aroused in the 16th century when Spanish and Portuguese navigators had found a southerly sea-route to the fabulous East. While the Spaniards discovered the Americas, the Portuguese marked out and established themselves on the route to India and China round the Cape of Good Hope. It was then that English and Dutch merchant-adventurers began to explore the possibility of a sea-route to the East in northern latitudes either by way of a North-East Passage along the north Russian coast, or by a North-West Passage round the north of Canada, free from



British Museum

A skirmish between English seamen and Eskimos. The scene is thought to represent an incident of one of Martin Frobisher's three voyages, in 1576–8, in search of a North-West Passage to the East along the coast of the Arctic Ocean. He brought back to England captive Eskimos whose Asiatic appearance—"much like to the Tartar nation"—encouraged belief in, and further search for, access to the East round North America



British Museum

One of the most enterprising Dutch navigators who sought for the North-East Passage was Willem Barents. He and his crew survived the winter of 1596–7 icebound on the coast of Novaya Zemlya. They built a hut and, when transferring stores to it from the ship, were attacked by Polar bears

obstruction by the Spaniards and Portuguese. Some of the most important English expeditions were sponsored by the Muscovy Company of Merchant Adventurers, founded in the reign of Edward VI. The chief aim of their endeavours, which continued throughout the 16th and 17th centuries, was not attained; but the names of their leaders remain as a memorial on maps of the Arctic and many fascinating details of their adventures are given in Mr Skelton's articles on *Explorers' Maps* in the present and the preceding number of this Magazine.

Attempts to find a seaway round the north of America or Asia continued during the 18th century, but without success. As a result of Dutch and English voyages the great open-boat whaling trade developed in the 17th and 18th centuries. Hundreds of Dutch, English, Scottish and Hanseatic ships voyaged to Spitsbergen and Greenland in pursuit of the herds of Right whales which earlier explorers had reported there. They gave the whales this name to distinguish them from the faster "Finners" or "Wrong" whales, which the whalers in their boats could not come up with.

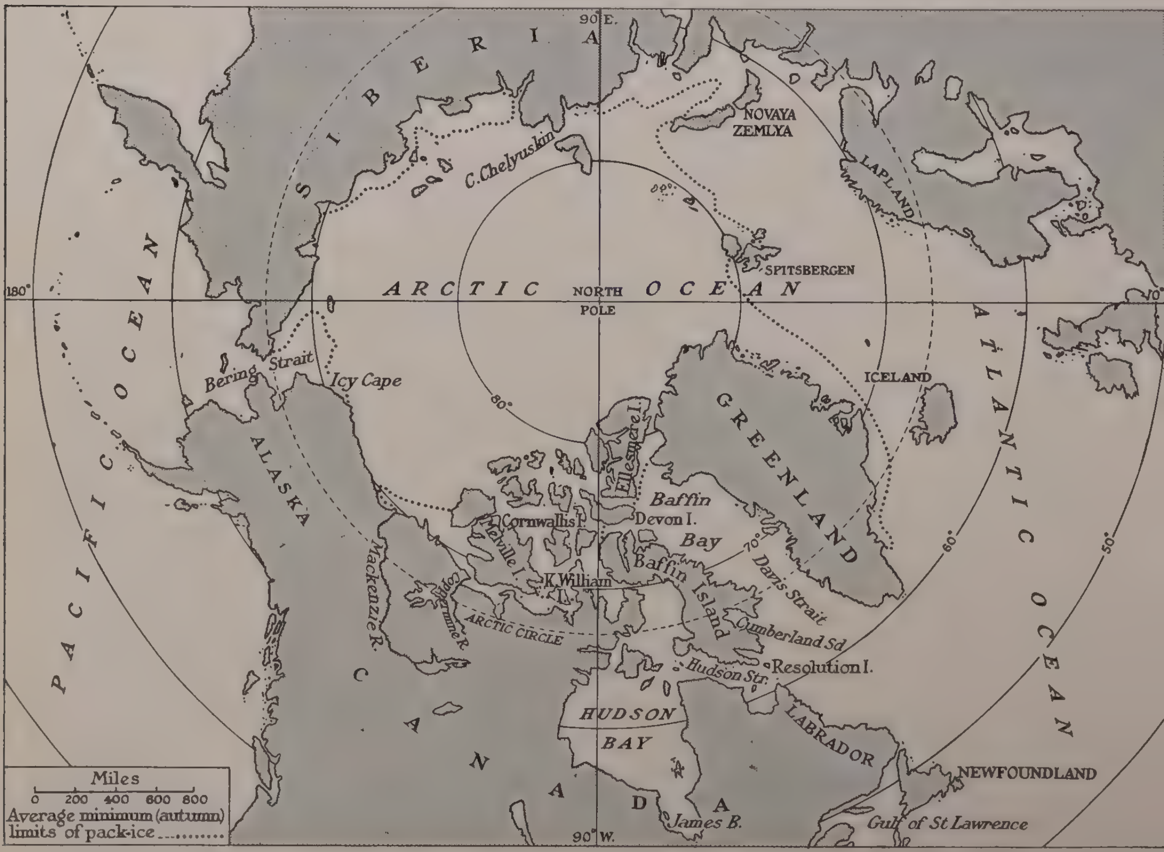
At the end of the 18th century the wars which followed the French Revolution put an end to exploration until after Waterloo. By that time the existence of a North-West or North-East Passage had become of academic interest since Portugal had long ago declined and Britain, mistress of the Indian Ocean, had opened its commerce to all nations. Nevertheless scientific exploration continued.

In 1845 an expedition under Sir John Franklin was lost in the ice near King William Island and, as a result, many relieving expeditions were sent north both from Britain and from the United States to search for it. These made important discoveries without achieving their principal object, since no ship succeeded in traversing the North-West Passage from end to end. It was left for the servants of the Hudson's Bay Company to complete the tracing of the northern coast of Canada round to the Bering Strait by land surveys; and not until 1906 was the sea passage finally made by the Norwegians under Amundsen.

Meanwhile the North-East Passage had been completed by Swedish explorers led by A. E. Nordenskiöld in the *Vega*. Until this expedition in 1878 no ship had made the passage round Cape Chelyuskin, though the Russian who gave the cape its name had completed the journey by sledge. The *Vega* sailed from Tromsö on July 21 and rounded Cape Chelyuskin on August 19. She nearly made the whole voyage to the Bering Strait in a single summer but became frozen into the ice in September when within two days' sailing of the strait. She was unable to complete the passage through it until the following July.

Thus, after three hundred years of endeavour, the northern sea-route to the East was found. But by then it had long ceased to be of interest as a highway of international commerce.

Over the remainder of the globe, between the polar regions, the great land masses influence the climate of the oceans, the air circulation over them and the water circulation within them. Land masses heat up and cool down much more quickly than water masses. When they heat up air rises over them and pressure consequently falls, so that air flows in towards them from the sea. When they cool down air sinks over them and therefore pressure rises. When pressure over a land mass becomes greater than that over the neighbouring ocean, air flows outwards away from the land towards the sea. The winds thus induced are often seasonal and cyclic, blowing steadily and regularly for fixed periods during the year, changing direction at the same time every year. They are called Monsoons, and they blow from the sea to the land when the continents heat up in the summer and in the opposite direction when the continents cool down in the winter.



A. J. Thornto

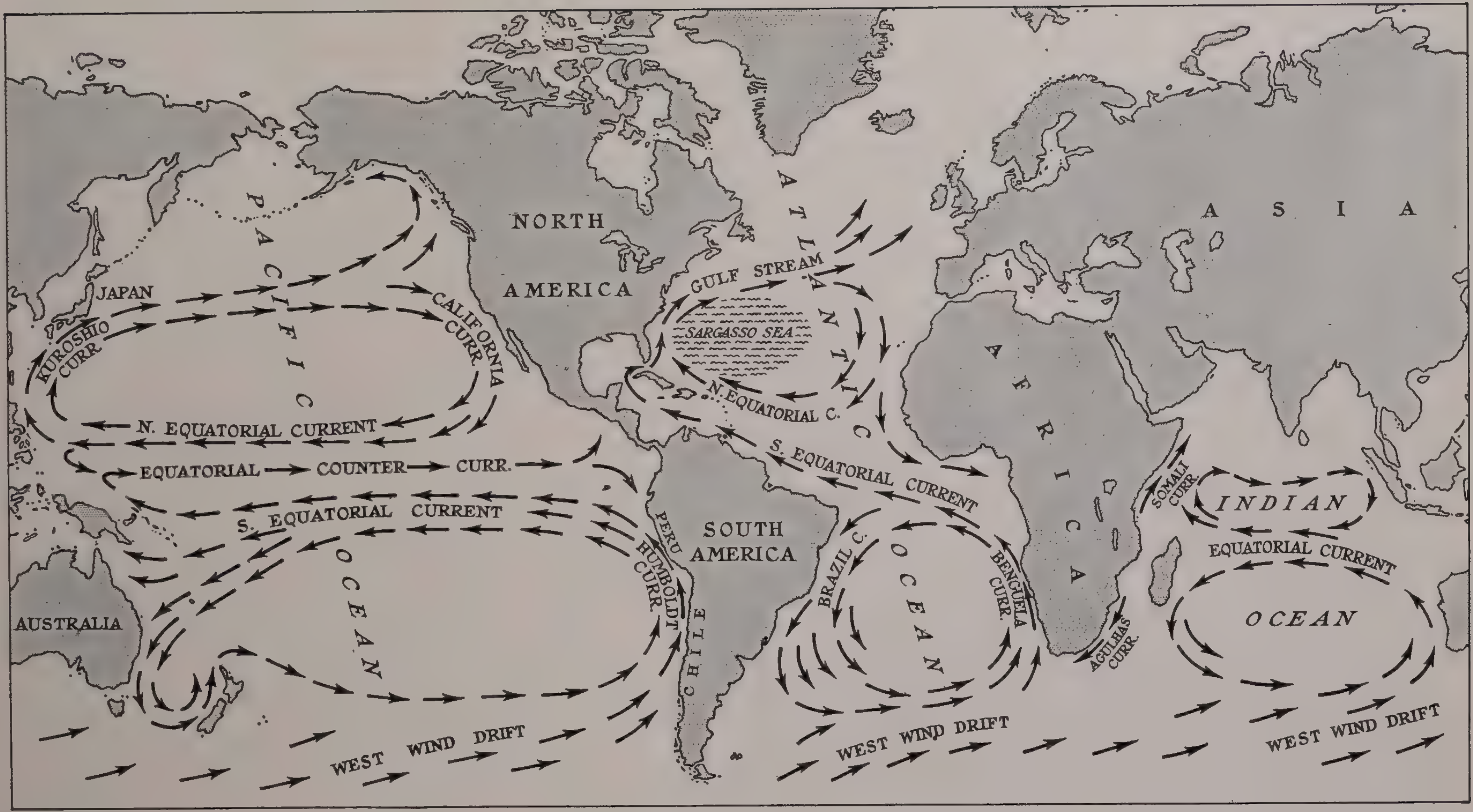
National Maritime Museu

"As a result of Dutch and English voyages the great open-boat whaling trade developed in the 17th and 18th centuries. Hundreds of Dutch, English, Scottish and Hanseatic ships voyaged to Spitsbergen and Greenland in pursuit of herds of Right whales which earlier explorers had reported there"

The great water masses, however, do not pick up or lose heat so easily as the land masses. Conditions over them are comparatively stable and settled. Air becomes cooled and sinks over the South Atlantic, the South Pacific and the South Indian Oceans. Over these oceans, therefore, are situated permanent high-pressure areas around which air circulates, as it always does around high-pressure areas in the southern hemisphere, in an anti-clockwise direction. Similar conditions prevail over the water masses in the northern hemisphere but the circulation around the oceanic high-pressure areas is clockwise. Thus over the water masses in both hemispheres the primeval circulation is maintained and air streams from the regions of high pressure towards the Equator where the pressure is lower. Over the southern hemisphere this air flow is the South-East Trade Wind, which blows constantly all the year round. Over the northern oceans it is the North-East Trade Wind.

The effect of the South-East Trade winds is to set up an anti-clockwise circulation in the surface waters of the southern sector of each ocean, so that water moves north-west towards the Equator away from the land mass on the eastern side. It moves west at the Equator towards the western shore of the ocean and then flows south to join the West Wind Drift.

As a result of this circulation water is always being removed at the surface on the eastern sides of the ocean basins and is carried away towards the north-west. To replace it much colder water rises to the surface from below up against the western coasts of all the southern continents. Cold currents are characteristic of all these western seaboards. The most marked of these upwelling effects is that which takes place along the coast of Chile and Peru. Here the upwelling cold water gives rise to what is known as the Humboldt Current, after the German explorer, Alexander von Humboldt. It is not a current in the true sense but an upsurge against the coast of cold water, very rich in



A. J. Thornton

Diagram illustrating the circulation of surface water in the oceans and the way in which the land masses break up the primeval trend of the globe's watery covering into separate systems of currents

By courtesy of the Agent General for Westerr

South-Western Australia owes its abundant rainfall and rich vegetation to climatic conditions influenced by an upwelling of cold water similar to those mentioned on this page. Here are found forests of valuable hardwood trees—mostly jarrah and karri—with heavy undergrowth

the salts which nourish the plant life of the sea. It supports a rich plankton population and a great variety of fishes. On these feed the myriads of seabirds which, over the centuries, have built up by means of their accumulated droppings the famous guano deposits of the Peruvian coast. But it sometimes happens that local disasters occur when an onshore wind of longer duration than usual retains the warm surface water up against the coast and hinders the upwelling of the cold. The sharp rise of temperature which results kills the cold-water flora and fauna along the coast, so that little ports, such as Callao, are for days filled with masses of decaying marine life and rotting fish.

On the west coast of Africa there is a similar upwelling called the Benguela Current. It cools down and condenses the warm air from the continent to produce frequent fogs off the west coast of Cape Province, and it enables penguins, which are essentially cold-water birds, to inhabit islands 600 miles north of the Cape of Good Hope, off the coast of South-West Africa. On the west coast of Australia a similar upwelling of cold water often brings mists to the mouth of the Swan River but keeps the climate of that coast cool and pleasant all the year round.

On the western sides of the three ocean basins the eastern seaboards of the continents, south of the Equator, are bathed in the warm southward-flowing stream of the anti-clockwise circulation. Along the eastern coast of Cape Province flows the Agulhas Current, a broad stream of warm water which gives rise to striking differences in temperature between the water on the Indian Ocean side of the Cape of Good Hope, where its influence is felt, and that on the Atlantic side which is under the influence of the Benguela upwelling. Similar warm currents flow southwards down the eastern coasts of Australia and South America.

North of the Equator the clockwise circulations in the North Atlantic and North Pacific produce south-flowing currents on the eastern side and north-flowing currents on the western sides of those oceans. In both hemispheres the current on the western side of each ocean is very much stronger and swifter than that on the eastern side. This, again, is an effect of the rotation of the earth for the watery skin of the revolving globe tends to lag and becomes piled up against the eastern coasts of the land masses.

It is because the western sides of the oceans are bathed by streams of warm water from the tropics, and because of the slow subsidence of the floor of the ocean which has

urtesy of the West India Committee

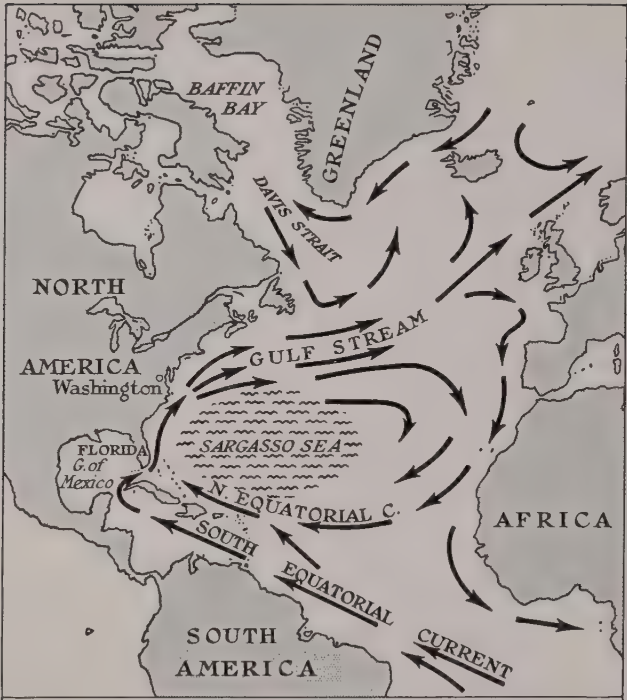
The circulation of surface water in the great oceans—clockwise in the northern, anti-clockwise in the southern hemisphere—bathes their western sides with warm currents from the tropics which encourage the growth of coral reefs. Thus on the western side of the North Atlantic are found (above) *the coral islands of the Bahamas; and on that of the South Pacific* (below) *the Great Barrier Reef of Australia*

ssor T. A. Stephenson

By courtesy of South African I

The same circulation brings in its train an upwelling of deeper, colder water along the western coasts of the southern continents. Northward along the South African coast flows the Benguela Current which enables penguins to live (above) *on Halifax Island off the coast of South-West Africa; while the Humboldt Current is rich in food for* (below) *the seabirds that have built up the famous Peruvian deposits of guano*

A. Costa, from Bl



Approximate direction and flow of surface water in the North Atlantic Ocean.

A. J. Thornton

been going on for a long period of geological time, that the strange and wonderful growths of coral are found on the coasts of East Africa and Australia and on islands in the western Atlantic and Pacific. The coral is a tiny polyp growing within a skeleton of calcium carbonate which it secretes round itself. The ceaseless multiplication of the polyps and of their calcareous skeletons slowly builds up the reefs towards the surface of the clear water as the floor on which they are based as slowly sinks. The greatest stretch of coral growth in the world lies off the coast of Queensland. This is the Great Barrier Reef, 1000 miles long and, in places, fifty miles wide. In the South Atlantic, although the South American coast is bathed by the South Equatorial Current and the warm Brazil Current from the tropics, there are no coral growths. Great rivers, such as the Amazon, bring down clouds of silt which forbid the growth of coral polyps and the conditions of subsidence of the ocean floor, which are needful for the formation of coral reefs, would seem to be absent in the South Atlantic. North of the Equator, however, in the warm, young Gulf Stream lie the coral islands of Bermuda and the Bahamas.

The North Pacific and North Atlantic resemble one another in that there is a clockwise circulation in the surface waters of both. But while the North Pacific is a wide basin almost closed on the northern side by a semicircular coastline, the North Atlantic is a comparatively narrow funnel-shaped passage opening into the Arctic Ocean in the north over a shallow shelf, and having a spout, formed by Baffin Bay and Davis Strait, pouring cold water into it from the north-west. The eddy formation set up by the rotation of the earth, and by the subtropical high-pressure area north of the Equator, is therefore intensified. The northern limb of the anti-clockwise eddy, the westerly South Equatorial Current, streams along the northern coast of South America at the comparatively high speed of three or four knots and narrows down into the funnel between the West Indian Islands and the isthmus of Central America. The force with which it drives into the Gulf of Mexico raises the surface level of the water appreciably higher in the Gulf than on the Pacific side of the isthmus. Through the narrow outlet of the Straits of Florida warm water pours into the Atlantic Ocean and flows northwards up the American coast to the latitude of Washington where it turns north-east and crosses the Atlantic as the beneficent Gulf Stream, which bathes the coasts of our islands with warm water. At its narrowest part, where it passes out of the Straits of Florida, the Gulf Stream is only about five miles wide and about sixty fathoms deep. It has a temperature around 26° C. It soon broadens out into a majestic "river in the ocean", as it was called by Lieutenant Maury, U.S.N., a distinguished American oceanographer of the 19th century. Soon after leaving the Straits of Florida it is thirty miles broad and 400 fathoms deep. Travelling at a speed of four knots it carries 1,000,000,000 cubic feet of water past a given point in a second. Sir Wyville Thomson wrote (in *Depths of the Sea,* page 382):

> The Gulf Stream, as it issues from the Straits of Florida and expands into the ocean on its northward course, is probably the most glorious natural phenomenon on the face of the earth. The water is of a clear, crystalline transparency and an intense blue, and long after it has passed into the open sea it keeps itself apart, easily

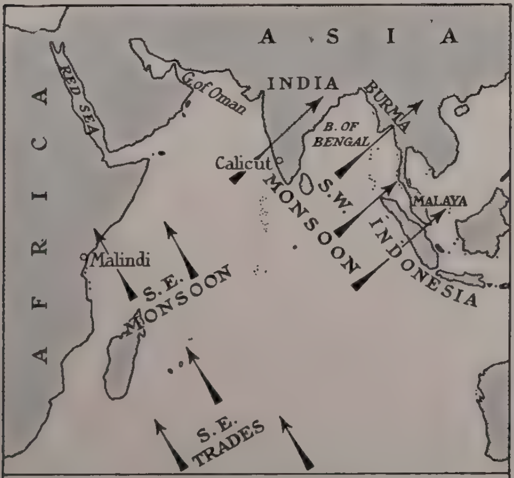
> distinguished by its warmth, its colour and its clearness; and with its edges so sharply defined that a ship may have her stem in the clear blue stream while her stern is still in the common water of the ocean.

To the east of the West Indies, in the elbow formed by this swift river of the Gulf Stream, is an area, the centre of the eddy, where there is little or no current. This is the Sargasso Sea where legend has it that sailing ships used to become trapped for ever, to be found many years later still drifting on a slow circular course manned only by skeletons. This is legend only, but large masses of the floating seaweed, Sargassum, do get lodged in this area and encumber the surface of the sea since there is no current to carry them away.

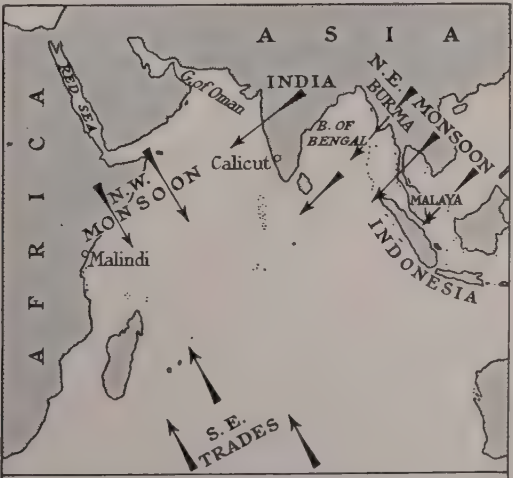
In about latitude 41° N the Gulf Stream, widening out and cooling down as it passes into the North Atlantic Ocean, is deflected towards the north-east by cold water pouring out of the Davis Strait between Greenland and Labrador. Here, where air warmed by the Gulf Stream flows over the cold water from the Polar regions, there are frequent fogs. Pack-ice and icebergs brought down by the cold water drift far out into the Atlantic and make navigation dangerous off Newfoundland and in the Gulf of St Lawrence.

A clockwise rotation prevails north of the Equator in each of the three great oceans, but, while the North Atlantic and North Pacific resemble one another to a large degree, the northern half of the Indian Ocean is different from either. It is totally enclosed upon its northern side by the land mass of Asia and bounded on the west by that of Africa. It is, therefore, very much under the influence of the seasonal climatic changes which take place over those continents. In summer the land mass of Asia becomes hot and pressure over the interior of the continent falls. Air then flows in from the Indian Ocean to the Asian land mass as the South-West Monsoon which blows from May to November, a hot damp wind bringing torrential rain to India and Burma. It produces, during these months, a surface drift in the Indian Ocean towards the north-east into the Bay of Bengal. At the same time over Africa the pressure falls as the Sahara heats up and air streams towards it from the Indian Ocean as an extension of the South-East Trades. In summer, therefore, the clockwise drift is reinforced in the Indian Ocean north of the Equator, and has a strong north-flowing limb, the Somali Current, along the African coast.

In the winter, on the other hand, the interior of the continent of Asia becomes very cold. Air sinks over it and pressure rises so that air streams from it towards the Indian Ocean as the North-East Monsoon, which blows from November to May. It is cool and dry at the beginning of its track, but it picks up moisture over the sea, bringing rain to Malaya, to the Indonesian islands and to the Coromandel coast. In the months when it blows, the clockwise circulation of the surface water breaks down and is replaced by a drift from the Bay of Bengal towards the African coast. During the same period the Sahara Desert cools down and air flows from Africa to the Indian Ocean as the North-West or "Cross" Monsoon, which blows over the western side of the ocean at the same time as the North-East Monsoon in the central and eastern sectors; and the Somali Current virtually disappears.

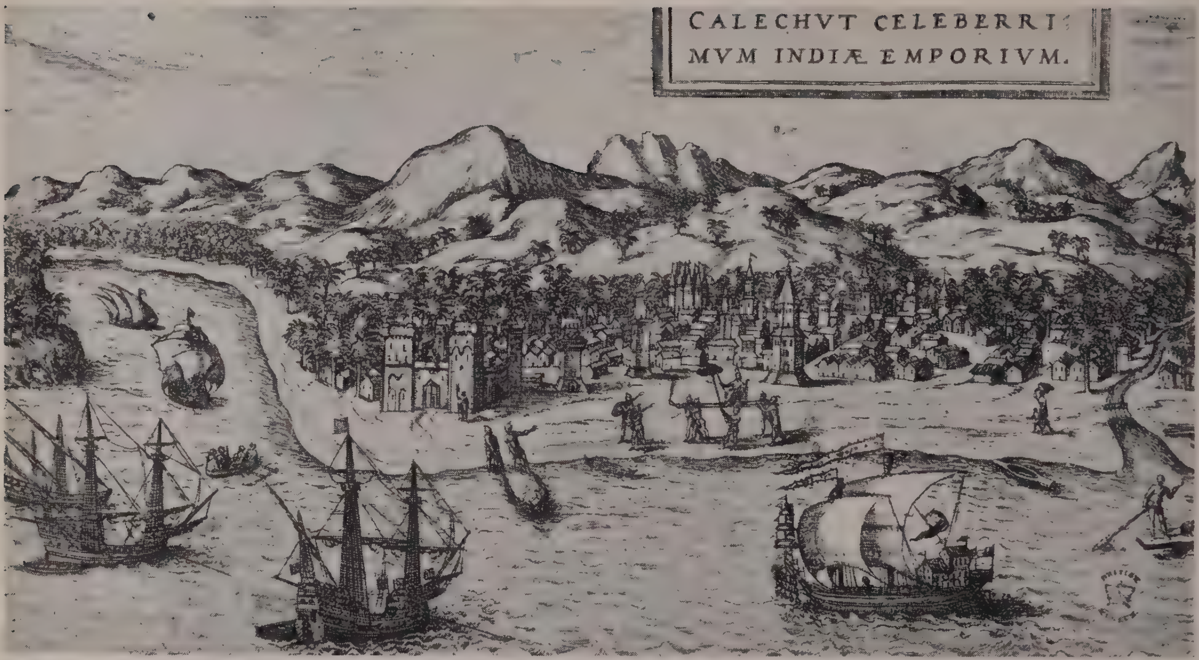


Monsoons in the Indian Ocean: May-Nov.



Monsoons in the Indian Ocean: Nov.- May.

A. J. Thornton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British Museum

(Above) *Borne by the South-West Monsoon, the ships of Vasco da Gama followed the route long travelled by Arab dhows to Calicut in India. It was the system of monsoon winds and consequent surface currents peculiar to the Indian Ocean which enabled the Portuguese, Dutch, French and British to conduct trade* (below) *with the kingdoms around its coasts and establish their successive empires*

British Museum

National Maritime Museum

Although navigators have profited by the seasonal regularity of the monsoons (*their name derives from an Arabic word meaning* "*season*"), *the central and western part of the Indian Ocean is subject to violent storms.* (Above) *The East Indiaman* Woodford *beset by a hurricane in that area in 1824*

These constant and regular monsoon winds of the Indian Ocean have had a great influence on the history of mankind. For centuries before Christ, before the time of Solomon, the dhows of the Arabs, Persians and Indians sailed across the Indian Ocean, bringing to ports in the Red Sea and Gulf of Oman the spices, precious stones and silks of the Far East, the gold, slaves, ivory and ebony of Africa. They sailed from Asia to the Red Sea on the North-East Monsoon and down the coast of Africa on the "Cross" Monsoon. They sailed back to the Far East on the South-West Monsoon and north up the coast of Africa on the South-East Monsoon, the extension of the South-East Trades. Dhows of almost exactly the same type, manned by crews who have changed as little as their ships, trade down the East African coast today and across to India on the same winds. They carry timber, dried fish and roofing tiles where once they carried slaves and elephants' tusks. The Eastern peoples knew about the monsoons for centuries before the nations of the West found out about them, but kept their knowledge secret. It was not until the first century of the Christian era that the Greek navigator, Hippalus, revealed them to the West. Nevertheless the Eastern nations, particularly the Arabs, kept their dominance of the carrying trade to the East until the beginning of the 16th century. It was then that the two greatest maritime powers of the world, Spain and Portugal, set out to find a way to the Far East which would enable their trade to become independent of the Arabs. Spain sent Columbus westward while Portugal sent Vasco da Gama round the Cape. In May 1498 he sailed east from Malindi, Kenya, on the South-West Monsoon which had just set in, reaching Calicut in three weeks. In January 1499 he returned to Africa on the North-East Monsoon and arrived home in Portugal the following August. After Vasco da Gama's expedition the Portuguese sent many others, using the monsoons to carry their ships across the Indian Ocean to their possessions in India and the Indies. In their turn the ships of the British, French and Dutch East India Companies made use of the monsoons of the Indian Ocean on their voyages to and from the Far East.

Britain's Self-portraiture in Feature Films

by ROGER MANVELL

In our April number Dr Manvell, Director of the British Film Academy, explained the scope of a series of articles which we are publishing with his collaboration. The first group of articles will deal with countries in which film-making has for some time been 'indigenous' in the sense of reflecting the national life; and in our July number M. Queval gave a Frenchman's view of his country's film production from this angle. Dr Manvell now does the same for British feature films

BRITAIN was one of the first countries to establish film-making in days when its founders can hardly have anticipated that it would become a major form of entertainment and a world-wide industry. Pioneers like the late Cecil Hepworth began their careers at the end of the 19th century by both personally making and personally exhibiting their short films. By the early years of the century certain national styles were already to be found embryonically in the work of such men as Hepworth in Britain, Méliès in France and Porter in America. It can be claimed that film-making which was British in both character and spirit is at least half a century old.

The British Isles, with their interesting mixture of races, their close-packed population and their remarkable varieties of regionalism to be found within very small distances, are a fine country for the film-maker. We are strongly marked in character; we pride ourselves on a staunch individuality; we like to stress our regional differences and superiorities within a general framework of "being British". These are great assets to a film-maker anxious to make his movie cameras reveal human nature and human environment as intimately as possible. In every street, in every market, on every farm and in every shop there are faces which bear the stamp of our national character; enough and plenty to spare. There is, however, the problem that the British (unlike, for example, the Italians) eschew the revelation of the drama in their lives. The national reserve veils the strong emotions which we feel. The casually-observing foreigner thinks us phlegmatic and cold, shy and reserved. Many of us wish to be thought so and a few actually are; but most of us are far from any of these things once we are known. The dramatist and the film-maker, who both depend in their story-telling on self-revelation through speech and action, are faced with the dilemma of stripping the mask of shyness from our brows and revealing the warmth and the tenderness, the strengths and the weaknesses beneath. A particular style has had to be evolved to do this effectively while actually maintaining the principle of the national reserve. The film-makers and the film critics call it "understatement". In our best films like *The Way Ahead, The Way to the Stars* and *Brief Encounter,* the understatement of emotion—resolved by eloquent silences or by giving a certain pathos to the *clichés* of accepted behaviour, or by side-tracking emotion by using laughter in its place—is as indigenous as our green, sweet and rain-quenched landscapes. These are the *nuances* of behaviour which screen-writers, film directors and actors must delicately create, and which the composers of film music must subsequently underline and quicken with the undercurrents of feeling which music can so readily start. It is no accident that the film-makers have turned to many of our greatest contemporary composers—to Sir Arnold Bax, to Dr Vaughan Williams, to Sir William Walton, Sir Arthur Bliss, William Alwyn, Alan Rawsthorne and others—to aid them in the expression of the emotions which underlie the quiet mask of British life.

For this real understanding of character and feeling is what lies at the basis of all indigenous film-making. Even a long tradition of craftsmanship and technical adroitness would be quite powerless without this understanding in the artist. The dramatic film can only be dramatic if it is first of all human. Certain actors and actresses, among them Laurence Olivier, John Mills, Robert Donat, Celia Johnson, Margaret Leighton, Ann Todd and Flora Robson, have the qualities of understanding which enable them to establish from the screen the more subtle shades of feeling which belong to our national climate.

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Many British films, notably those dealing with the war, offer a national self-portraiture idealizing a character which amuses the foreigner with its 'understatement': that of the reserved, shy, proud yet modest Briton. We owe to James Thurber, and to Danny Kaye in The Secret Life of Walter Mitty, *a gently satiric version of the character—one which is both funny and true. Michael Redgrave represents this typical idealization in* The Way to the Stars, *a film about the R.A.F. directed by Anthony Asquith*

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Although the British Isles are small, their strongly marked regional differences emerge in feature films. (Above) *Ealing Studios' comedy* Passport to Pimlico *manifested the Londoner's craving to defy officialdom.* (Below) The Brothers, *a Gainsborough film, concerned inter-family rivalry in Scotland's Western Isles*

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(Above) I See a Dark Stranger *contained many location scenes in Northern Ireland: here smugglers are using a mock funeral procession to camouflage their activities at the Border.* (Below) *The tragedy of a miner whose lungs are affected by coal-dust is the subject of Jill Craigie's Welsh film* The Blue Scar

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They would not, I think, deny how much their performances owe to those who write and direct their films, but the qualities must be there in them as artists to be elicited. All actors are to a greater or lesser degree exponents of the characteristics of their own race and nationality.

Let it be agreed, then, that scenic backgrounds and good photography are not enough by themselves to create the indigenous British film. We have exploited our varied scenery and cities well enough—Scotland in *The Edge of the World, I Know where I'm Going* and *Whisky Galore,* Wales in *Blue Scar* and *Halfway House,* Cornwall in *Johnny Frenchman,* the Midlands and the West in *Painted Boats, Tawny Pipit* and *Chance of a Lifetime,* the South of England in *Canterbury Tale* and *The Loves of Joanna Godden,* Ireland in *Man of Aran, No Resting Place* and *Odd Man Out,* and London in a host of films —*The Blue Lamp, The Fallen Idol, Seven Days to Noon, Passport to Pimlico* and *Hue and Cry.* But to be indigenous a film must successfully merge the British character with the British scene, and not present confected stories and artificial characters against a background location of real streets and sunlit mountains. Nothing looks so false as an actor *being nothing but an actor* against a background of living trees!

The indigenous film was comparatively rare in Britain before World War II. The quiet authenticity of Cecil Hepworth's romantic silent films (1898–1924) with their gentle comedy and refined drama, for example *Rescued by Rover* (1905) and his last major film *Coming through the Rye* (1924), were essentially English. But Britain, her film production almost destroyed for a decade and a half by World War I, had to wait in effect until the 1930s for a revival of production on a sufficient scale to give rise to a national movement. The greater part of the production of the 1930s was disastrous; under the legal protection of the Quota Acts which obliged the British exhibitor to show a rising percentage of British films, producers without

The first outstanding British story film, Rescued by Rover *(1905), appropriately featured its producer's dog! The late Cecil Hepworth, who made and acted in this pioneer film, with his hero*

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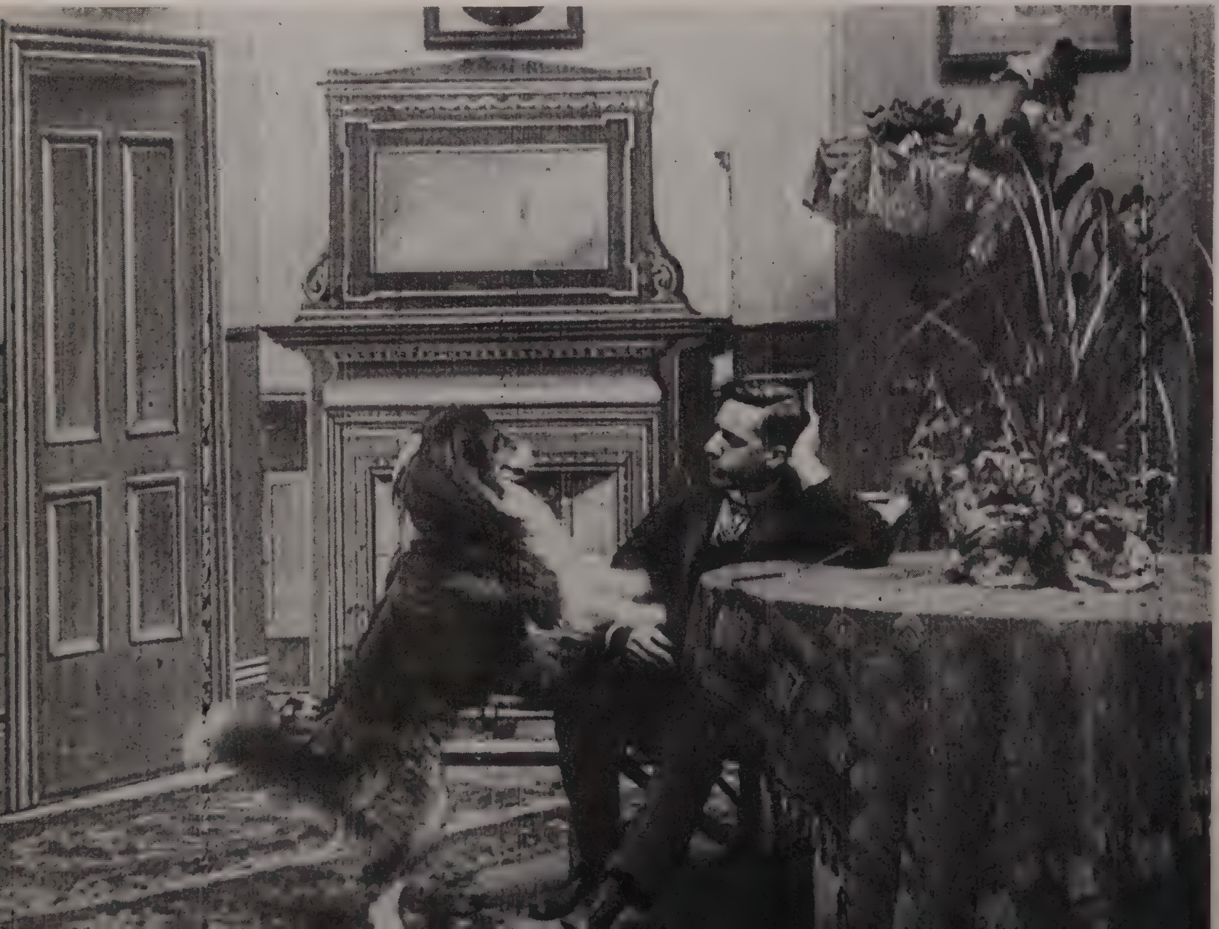

National Film L

Among early sound-films, Alfred Hitchcock made a series of thrillers with characteristic British scenes and backgrounds. The story of The Man Who Knew too Much *(1934) was based on the famous siege, by police and army, of armed gangsters in Sydney Street in the East End of London*

good sense or conscience turned over quick money or bad debts by making hundreds of cheap, unworthy films. Against this tendency stood strongly such producers and directors as Alexander Korda, Michael Balcon, Anthony Asquith and Alfred Hitchcock; and most of the directors whom we now acclaim as our best film-makers were serving their apprenticeship during the 1920s and 1930s as writers, film-editors and directors—for example David Lean, Thorold Dickinson and Charles Frend who were editors, Carol Reed and Michael Powell who were directors, or Frank Launder and Sidney Gilliat who were writers. This, too, was the inspiring period for British documentary production, soon to become so influential in helping to form the style of the wartime British feature film. Nevertheless, the signs of a new indigenous movement in the feature film were evident in the work of Anthony Asquith (e.g., his film of the Gallipoli landings, *Tell England*), Alfred Hitchcock (in his thrillers set against a London background, *Blackmail* and *The Man Who Knew too Much*), Michael Powell (in *The Edge of the World*, photographed on the Hebridean island of Foula), Carol Reed (in *Bank Holiday* and, above all, in his film of a mining disaster, *The Stars Look Down*) and in such films as the Welsh *Proud Valley*, the Lancashire *Love on the Dole*, and the Yorkshire films *South Riding*, *Turn of the Tide* and the war film *Farewell Again*. The distinguished work of Alexander Korda (including *The Private Life of Henry VIII*, *Rembrandt* and *Things to Come*) tended to be international in character rather than specifically British; its great service to British films was to draw the attention of the world to the fact that productions of high quality could come from this country.

When World War II came it seemed at first

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To Sir Alexander Korda belongs the credit of making some of Britain's best film productions known throughout the world in the middle 1930s. Often international in theme, his more spectacular films were beautifully mounted and photographed. (Above) *A scene from* Rembrandt

During the war the reputation of British feature films was consolidated by many productions which presented successfully the atmosphere and the emotions of the war years. (Opposite, top) *The impact of the war on the civilian was shown in the film by Frank Launder and Sidney Gilliat,* Millions Like Us, *where girl workers are seen in the air-raid shelter at their war plant.* (Opposite, bottom) *A group of sailors from Noel Coward's production* In Which We Serve, *the first of the films made in wartime to reflect and dramatize the life of the British Navy in action*

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National Film Library

as if production would cease. Two-thirds of the studios closed down; two-thirds of the skilled film technicians were called up. But production was maintained on a very reduced scale and reached a general level of artistry which has never since been equalled. The nation was close-knit by the wartime emotions; we were serious as never before and were not afraid to feel keenly behind our mask of national reserve. These qualities gave birth to the great series of feature films on war subjects which first discovered their style in the dramatic documentaries like Harry Watt's *North Sea* (1938). This film was the story of a Scottish fishing trawler damaged by heavy seas, and it was re-enacted by a crew of real seamen. With films to our credit like *In Which We Serve* (Noel Coward's film of the Navy), *Millions Like Us* (the civilian in wartime industry), *Nine Men* (a story of desert warfare), *The First of the Few* (about the designer of the Spitfires), *San Demetrio, London* (which told a true story showing the courage of the merchant seamen aboard a damaged oil tanker) and *The Way to the Stars* (a story of men in the R.A.F.), Britain could feel she had established a national school of film-making which placed her work alongside the best produced by America and pre-war Europe. The same period of high quality in the war films saw many productions of subjects which, though mostly unconnected with the war, reflected to an equal degree the character of the British people. These films included *This Happy Breed* (by Noel Coward and David Lean), *The Life and Death of Colonel Blimp*, *Brief Encounter* and *Henry V*.

Brief Encounter became the symbol of British films abroad immediately after the war. It was not outstandingly popular in Britain, probably because its theme of the frustration of love in middle-aged people did not appeal to the younger element which makes up the greater part of the audiences in our cinemas. But it was recognized abroad as completely British, the product of years of screen-writing and film direction in which artistry in self-portraiture was brave and assured. Noel Coward knew exactly how this married man and married woman would suffer in love, working out their destiny enclosed in the network of little provincial Northern towns where they live. The station used for the locations was Carnforth in Lancashire. The love affair was set against the background of this station; the express trains rushing through gradually became symbolic of the lovers' inability to fulfil their passion, confined as they were to catching the slow, necessary and useful locals. But it was in the treatment of the woman's character, so beautifully played by Celia Johnson, that the English quality most clearly emerged. The emotions are all muted, expressed through crushed handkerchiefs, the turning aside of the face, the mouth on the verge of tears, the twitch of nerves beneath the skin. Although love is expressed in the words, hesitantly and then assuredly, the eloquence is never in the dialogue but in the nature of what is left unsaid and the way in which the writer, the director and the artists underline the unspoken emotion in their collective presentation. This muted English emotionalism is backed (too heavily backed for the writer's taste) by a radio set receiving a concert performance of the Piano Concerto in C Minor by Rachmaninoff, but the pulsations of the music do not overset the firmness of Celia Johnson's interpretation of the character she portrays, lying back in an armchair in her living room, the music accompanying her memories of the lover from whom she has finally parted.

This performance resolved the problem of the English character for many Italians and French. They were deeply moved by the film; they saw the emotional logic of it though they would not themselves have endured the same emotional complications as this provincial Englishwoman did. The film was indigenous, completely and successfully revealing the national character in a wholly national form of artistic expression. Even the use of the heavily emotional music to escape, in a way, the expression of emotion through open words and deeds was in itself a national characteristic.

The war films similarly muted our strong feelings of national comradeship, set against the suffering which severance, uprooting, loneliness and death brought to the greater part of our people. The film-makers knew that their audiences were experienced in these things and that the greater strength of expression lay in the suggestion of emotion, since this gave audiences the chance to identify their own feelings with those of the characters on the screen. *In Which We Serve*, Noel Coward's film of naval men and their wives, was, if anything, over-expressive of emotion. But later films were most successful, like *The First of the Few* (with the late Leslie Howard, that most English of actors), *Waterloo Road* (with John Mills) and *The Way to the Stars* (with Michael Redgrave and John Mills).

After the war was over and people were readjusted to more individual forms of living, it became much more difficult to create films on a similar level to the best productions of 1941–5. A certain distinction has to

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Celia Johnson in Brief Encounter, *written by Noel Coward and directed by David Lean for Cineguild*

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(Above) *Some British post-war films, such as Ealing Studios'* Scott of the Antarctic, *have had naturalistic subjects specially prepared for the screen.* (Below) *Others, mainly derived from plays, have been more theatrically effective: a group from the film based on Terence Rattigan's play* The Browning Version

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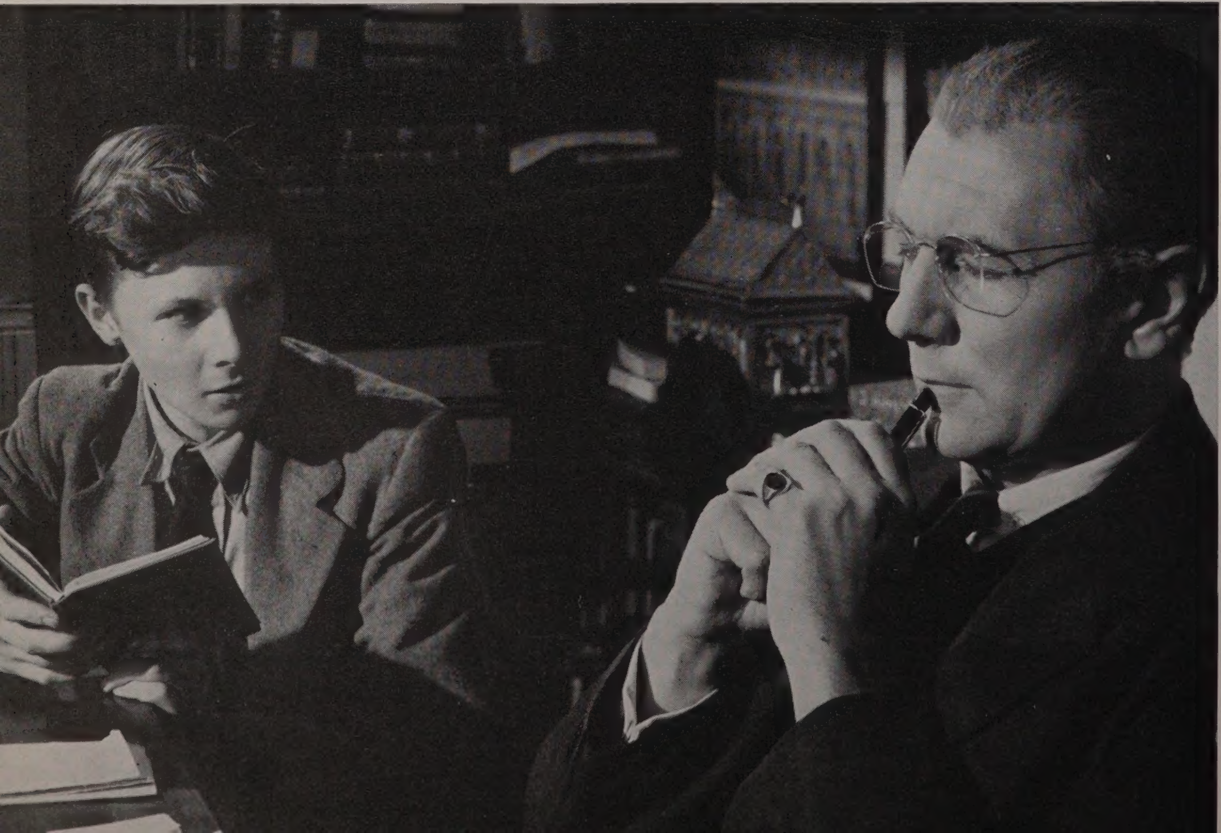

National Film

No single director has contributed more to the post-war reputation of British films than Sir Carol Reed. (Above) *A scene in the London Zoo from his film* The Fallen Idol, *starring the child actor Bobby Henrey.* (Below) *Alec Guinness, a master of humorous understatement, in Ealing Studios'* The Lavender Hill Mob

National Film

be drawn between films which are indigenous in a naturalistic sense and indigenous in a theatrical sense. I would describe as indigenous and naturalistic Ealing Studios' Scottish comedy *Whisky Galore,* based on Compton Mackenzie's novel of a Scottish island with a wartime windfall in the shape of a foundered vessel full of export whisky. It was shot entirely on location at Barra. I would also describe in the same way *Scott of the Antarctic,* Bernard Miles's film *Chance of a Lifetime* and the recent film of a Scottish mining disaster, *The Brave Don't Cry.* But films mainly derived from plays, like *The Guinea Pig, The Winslow Boy, The Browning Version* or even *The Blue Lamp* and *The Sound Barrier,* I would call theatrically indigenous; by which I mean that both the characters and the situations, though peculiarly British, are 'dressed' for a kind of presentation which will be effective in a theatrical way. This is not meant necessarily to imply criticism of them; they are often more moving than the more naturalistic films, which can suffer from being tedious through lack of a firm structure to their story and action. Both kinds of film, the first leaning towards a more documentary style and the second towards a broader style suitable for the stage, are peculiarly British.

The studios with the most pronounced policy of producing the indigenous film are those at Ealing, working under the supervision of Sir Michael Balcon, who has been head of production there since 1938. Sir Michael has frequently said that his studios learnt their approach to the war film from the British documentary movement, and it is interesting to compare Ealing's film *San Demetrio, London* (in which actors are used to impersonate the chief members of the crew of a tanker, brought by them to port in spite of heavy damage and fire) with the official Crown Film Unit's production in the true documentary tradition, *Western Approaches* (in which real merchant seamen re-enacted what could happen when a merchant ship is torpedoed in mid-Atlantic). Both are good films and unmistakably British in character. The first film (directed and partly written by Charles Frend) tells its story in terms of the individual private lives of the men who are developed as fictional characters, and it makes considerable use of carefully written dialogue; the director of the second film (Pat Jackson) allowed his non-professional actors to reveal themselves through dialogue which is largely a development of their own natural speech, but in no sense attempts to dramatize them as characters—they remain, in fact, representative of British merchant seamen as a whole rather than men demanding of the audience sympathy and interest for themselves as individuals whose private lives are of direct consequence to the subject of the film. In fact, where the emphasis of a film is on character for its own sake the result is dramatic fiction; but where the emphasis is on human beings as members of a community of which some social aspect is the true subject of the film, then the result is a documentary.

Later, after the war, Ealing Studios were to extend their particular kind of realism into dramatic thrillers with backgrounds derived from real life, as in *The Blue Lamp,* a story of the London Metropolitan Police Force, and into fantastic comedies with real-life locations, such as *Hue and Cry* and *The Lavender Hill Mob.* This policy of blending actuality with fiction succeeds best in the comic fantasies—each element offsets the other. In the more realistic kind of dramas it is completely satisfactory only when the fictional characters in the foreground of the story are themselves acceptable as real people.

The work of Sir Carol Reed, perhaps our most distinguished British director, is not the most characteristically British. His particular quality is, first, to absorb the atmosphere of richly endowed places and to present them as an active part of the stories he has to tell, and, second, to get performances of great subtlety from his actors and actresses. His post-war productions have led him to many places—Belfast, Vienna, Ceylon and Borneo and West Berlin. Only one of these films, *The Fallen Idol,* was set in London, and then on the foreign territory of an Embassy mansion standing in Belgrave Square. He is a seeker after a wider interpretation of character than is to be found in Britain alone; he is an Englishman fascinated by the strange and the foreign, and this has been an indigenous English quality for many centuries!

For twenty years the most closely national of our films have been our documentaries and those few story films, like *Nine Men* (Harry Watt's film with the subject of desert warfare in Africa) or *No Resting Place* (Paul Rotha's story of the tramps of Ireland), which have derived most directly from the documentary movement. But the development of the British documentary film is another and separate story to be told later in this series of articles. Meanwhile, it can be claimed that the best feature films which Britain has made have been those which in one way or another have been indigenous.